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DECEMBER 1949

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FOR THE EXPERIMENTER & RADIO ENTHUSIAST

9D.

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Melbourne, C.1

EDITORIAL

★

The spirit of goodwill always associated with Christmas apparently has already reached the shores of Western Australia. Federal Executive appreciates the sentiments expressed in a letter received from the Federal Councillor for VK6 so much, that it feels constrained to throw aside all modesty and publish herein the contents thereof.

"I don't doubt that Federal Executive will agree that its efforts and work generally receive more kicks than compliments, and it is therefore with considerable pleasure that I carry out the instructions of this Division in conveying to your Executive collectively and individually our thanks and commendation for your work in the interests of Amateur Radio.

"It is realised, also, that much of the work is on behalf of remote Divisions and concerning matters which can have little direct interest to you but to which, nevertheless, your Executive devotes considerable energy and time, the latter item being a charge on that elusive and scarce commodity known as spare time, to say nothing of the time which it must be necessary on occasions to extract during business hours.

"We also feel that to your Executive and its predecessors should go the credit for the transition, particularly in the post-war period, of Divisional outlook from a purely State to a wider Commonwealth plane. In this lies much of the strength of our organisation, and we wish you continued success."

Federal Executive extends its heartfelt thanks to VK6 Division for its complimentary and gratifying gesture; but feels that in reality it is the wholehearted support accorded by the Divisions in general, and remote Divisions in particular, that has made it so easy and pleasurable to carry out the wishes of Federal Council.

As the activity of the Divisional Council is the barometer to the interest being taken by the individual members in the activities of the Division, Federal Executive is able to gauge the degree of interest in each Division, and quite naturally reacts favourably to the stimuli. From now until Easter, Federal Executive will be busy collecting, from the Divisions, material for inclusion in the Agenda for the Twentieth Annual Convention. If each and every member includes amongst the list of New Year Resolutions a pledge to put forward at least one constructive suggestion, then we will all have a **Happy Christmas, a Bright and Prosperous New Year, and a large Easter Egg.**

FEDERAL EXECUTIVE WISHES YOU ALL THE COMPLIMENTS OF THE SEASON.

The Contents . . .

A Triple Conversion Receiver

BY M. DU FEU,* VK6DF

The receiver described in this article was commenced about two years ago, and at that time it was intended to include in it every worthwhile feature from an Amateur's view point. Just what can be classified as a "worthwhile feature" undoubtedly varies from Amateur to Amateur, and in fact the Writer's opinion on this point has changed more than once since commencing the construction of the set. Also in s.s.s.c. transmission and reception, we have an Amateur technique that was not in use two years ago. Nevertheless, there are certain fundamental requirements for an Amateur receiver that are not debatable. Notable among these are stability and selectivity.

Sensitivity (signal-to-noise ratio) is important also, of course. But it is only of special importance from a design point of view from about 28 Mc. upwards, as at lower frequencies no special requirements are necessary to obtain satisfactory results. In these points this receiver is outstanding, and it also possesses another very desirable feature, accuracy (and ease) of calibration. On all bands covered (7, 14, 21, 27 and 28 Mc.) the frequency may be read directly from the dial with an error of not more than 3 Kc., and usually with much less error. With regard to ease of calibration, it is only necessary to calibrate the receiver for the 7 Mc. band. The calibration for the other bands is then obtained by adding a constant for each band to the 7 Mc. calibration.

The bands mentioned above were the only ones it was desired to cover with this receiver, although, for the sake of completeness, some thought was given to including the 3.5 Mc. band. However, as only five position band change switches were available, and as not much interest was felt in this band anyway, the idea was dropped.

A principle to which the writer felt much attracted was that used in the Collins 75A receiver, of having the first local oscillator crystal controlled, and tuning by varying the second oscillator frequency. In fact, this method has outstanding advantages from the point of stability, and ease of calibration, and increasing use is being made of it, as witness recent articles in "QST" and "A.R."

About the time it was decided to adopt this principle, the Command type transmitters became available and it was obvious that one of these would be ideal for the receiver's second local oscillator and tuning control system. Mechanically they far surpass anything available to the average Amateur for this purpose, and the stability of the oscillator leaves nothing to be desired.

One of the units covering the range 5.3 to 7 Mc. was obtained, and by removing plates from the oscillator tuning condenser, and altering the band setting condenser, it was made to tune from 6.536 to 8.655 Mc. over 47 revolutions of the tuning knob, and without too much trouble it was possible to make it fairly linear, that is its average of 45 Kc. per revolution is very nearly the actual figure for each revolution.

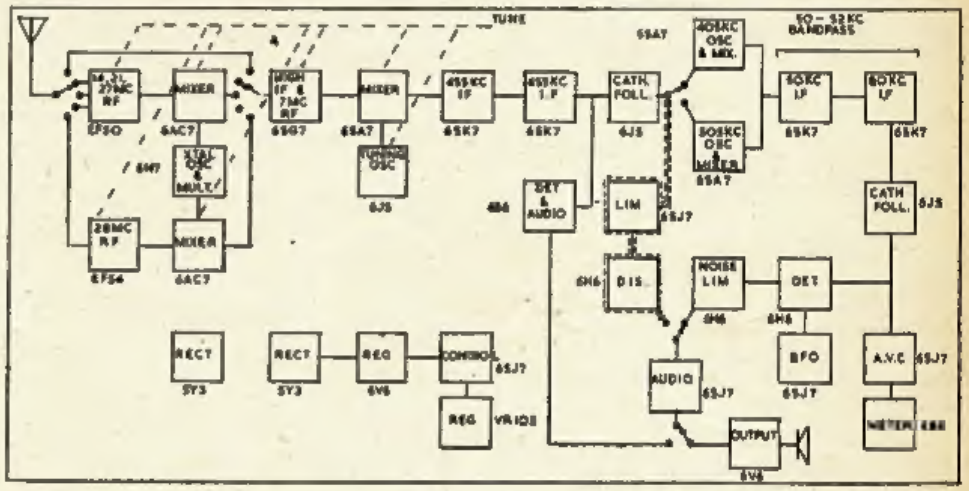
The 1625s and their tank coil and padder condenser and the antenna loading coil and antenna relay were removed and a 6SA7 mixer and two stages of 455 Kc. i.f. amplification using 6SK7s were mounted on a small sub-chassis which was installed between the 1625 sockets and the front of the unit (where the tank coil and antenna loading coil had been). The grid coil for the mixer was mounted underneath the unit, and was tuned by the condenser previously used to tune the 1625s tank coil, the tuning range being 6.991 to 9.110 Mc., that is 455 Kc. higher than the osc. frequency.

Circular holes about 1¼" diameter were cut in the right hand side (looking from the front) of the unit directly in line with the centres of the tuning condensers, and specially turned brass couplings were attached to the two tuning condensers so that a ¼" shaft projected through each of the two holes. Flexible couplings were used to connect these couplings to two sets of ganged condensers; one set tuning the 28 Mc, r.f. and mixer stages, and the other tuning the 14, 21 and 27 Mc. r.f. and mixer stages, and the 7 Mc. r.f. and mixer stages. A considerable time was was spent to get acceptable tracking.

Brass rods ¼" square are attached to the sides of the Command unit and these carry aluminium plates on which are mounted some of the other components. The outside edges of these plates are attached to similar rods on the sides of the receiver cabinet.

The frequency coverage is, of course, fixed at 2.119 Mc. on each band, and the tuning rate is therefore the same on each band, averaging, as previously mentioned, 45 Kc. for each revolution of the tuning knob. The knob carries a plate 4½" in diameter, the outside edge of which is divided into 50 parts, each division representing 1 Kc. (nearly).

A drum is mounted in place of the dial on the Command unit, which is directly behind the front panel. This drum is used to drive a cord carrying a cursor, and the cursor moves forward 1 division (¼") for each revolution of the tuning knob and dial. Cardboard scales ¾" wide were made for each band, and fastened to the faces of a hexagon brass rod (bored out to reduce the weight) which is arranged to revolve so as to bring the correct scale for the band in use behind the cursor.



The different bands are covered as follows:—

7 Mc.—The signal is fed from the antenna to the 7 Mc. i.f. stage, and the band covered is from 6.991 to 9.110 Mc.

14 Mc.—The signal passes through one stage of r.f. amplification, and is mixed with a signal of 6.2 Mc. from the local crystal oscillator. (The 6.2 Mc. crystal was obtained from the Command Unit.) The coverage is from 13.191 to 15.310

The block diagram (Fig. 1) tells most of the story. The receiver is built up as seven separate sub-assemblies, and is contained complete (except for loudspeaker) in a cabinet measuring 20" long x 12" high x 13" deep. Two other 28 Mc. front ends were tried, using (a) a 6J6, and (b) a 6AK5 in the r.f. stage. There was no noticeable difference in results however. A wiser choice than the EF50 would probably have been a 6SK7, or perhaps 6SG7, as the greater freedom from cross modulation effects would be of more value that the higher gain of the EF50.

* c/o. G.P.O. Box G500, Perth, W.A.

Mc. (6.991 + 6.200 to 9.110 + 6.200).

21 Mc.—The second harmonic of the crystal frequency is used, i.e. 12.400 Mc., which gives a tuning range of 19.391 to 21.510 Mc.

27 Mc.—The third harmonic is used, i.e. 18.600 Mc., which gives a tuning range of 25.591 to 27.710 Mc.

28 Mc.—A crystal frequency of 5.212 Mc. is multiplied four times to give a frequency of 20.848 which provides a tuning range of 27.839 to 29.958 Mc.

On the 14, 21 and 27 Mc. ranges, there is second channel interference from the 6.2 Mc. crystal, which appears at 13.310, 19.510, and 25.710 Mc. All of these frequencies are far removed from Amateur Bands, and are therefore of no consequence. On the 28 Mc. range the fourth harmonic of the v.f.o. appears at about 28.4 Mc., and this frequency is inside the band and is a nuisance. However extensive by-passing and shielding reduce its intensity to a fairly low value, and as it is the fourth harmonic of the v.f.o., it tunes four times as fast as does any external signal being received. There are no other spurious responses.

Before deciding on the 455 Kc. i.f. finally adopted, 1600 and 2000 Kc. were tried, as also was having the oscillator frequency 455 Kc. higher than the signal frequency. However, in each of these cases there was much trouble from spurious signals. Considerable trouble was experienced also on the 28 Mc. range with unwanted signals beating with what turned out to be the 5th, 6th, and 7th harmonics of the 5.212 Mc. crystal. This was overcome by making use of two loosely coupled circuits tuned to the 4th harmonic in the harmonic amplifier, as shown in the diagram.

The wavetrap shown is essential only on the 14 Mc. range, and it is completely effective.

The single-sideband section of the receiver is adapted from the unit described by J. L. A. McLaughlin in "QST" of October, 1947, the special inductances required being made by Kingsley Radio. This portion of the receiver has been somewhat disappointing, however, the reason most likely being that the 50 Kc. band-pass amplifier is not correctly aligned. For all that the 50 Kc. i.f. channel would be worth while even without the selectable sideband feature, as the increase in selectivity it gives is very considerable.

In fact the selectivity is such that some phone signals are almost unintelligible unless a means is provided to attenuate the lower audio frequencies, and thus provide a better balanced audio signal. At a later date it is hoped to replace this part of the receiver by the single-sideband unit described in "Ham News" of Nov.-Dec., 1948, and this is one reason for the inclusion of the regulated power supply.

The portion of the receiver indicated by dotted lines has yet to be added. Otherwise the receiver is complete, and has been working for several months with very good results.

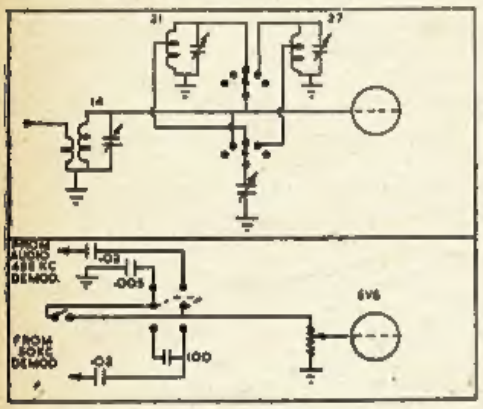


Fig. 2a (above) and 2b (below)

The arrangement of the switched coils (Fig. 2a) for the 14, 21 and 27 Mc. bands is unconventional. The antenna is coupled in only through the 14 Mc. coil, which remains in circuit all the time. Other coils are switched across it as shown, to reduce the inductance.

When the 455 Kc. demodulator is connected to the output stage, the single throw toggle switch (Fig. 2b) is used to connect a condenser from grid of the 6V6 to ground, thus removing some of the highs. When the 50 Kc. demodulator is connected to the output stage, the same switch is used to place a 0.0001 uF. condenser in series with the 0.02 uF. coupling condenser, thus greatly attenuating the low frequency response.

This is a definite advantage for c.w. and for copying those phones in which there is no appreciable low frequency attenuation at the transmitter. The high frequencies are cut so much in passing through the 50 Kc. i.f. stages, that many signals are almost unintelligible unless this condenser is used. On the other hand, if the lows are sufficiently attenuated at the transmitter, results are better without this condenser in circuit.

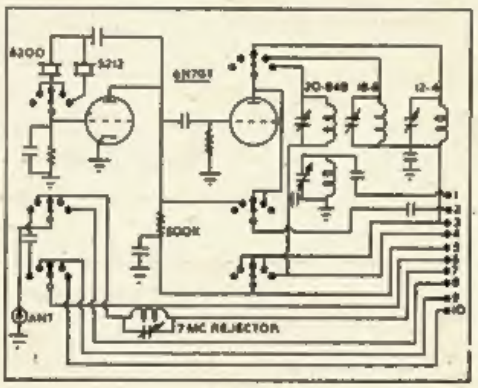


Fig. 3.—Crystal Oscillator Stage.

Designations:—

1—To 28 Mc. mixer grid.
2—To 14, 21, and 27 Mc. mixer grid.
3—B+ to 14, 21, and 27 Mc. r.f. and mixer.
4—B+ to 28 Mc. r.f. and mixer.
5—B+ from supply.
6—To input of 7 Mc. stage.
7—To input of 14, 21, and 27 Mc. stages.
8—To input of 28 Mc. stage.
9—To 14, 21, and 27 Mc. mixer plate.
10—To 28 Mc. mixer plate.

The crystal oscillator uses one section of a 6N7GT in a Pierce circuit (Fig. 3). The other section is used as a multiplier. The oscillator operates with very low plate voltage. The switches shown above are ganged with the coil switches in the r.f. and mixer stages for the 14, 21 and 27 Mc. bands.

A Simple A.M.C. Circuit That Really Works

BY B. E. CABENA,* VK3KF

This system has been in use at the writer's QTH for the last twelve months and during this time a number of requests have been received for circuit data. It was therefore thought desirable to send in an article to this magazine for publication.

For the benefit of readers who may not be very conversant with automatic modulation control, a short explanation of its principles will not be out of place. It is analogous with the a.v.c. system used in receivers in that some of the incoming signal is rectified, filtered and the resultant d.c. applied to the grids of the tubes in the stages whose gain is to be controlled.

The method of achieving this however, is somewhat different in that with audio amplifiers, in order to obtain effective control, it is necessary to tap off portion of the audio signal from the plate of the stage preceeding the one to be controlled and feed it to a separate amplifier stage, or stages, the output being rectified and then passed through a filter to eliminate the audio component. The resultant voltage is thus pure d.c. and it is equal in value to the average value of the audio signal.

This voltage, when applied to the grids of the tubes to be controlled increases or decreases the bias in proportion to the average variations of the input signal to the amplifier. This means that the output of the amplifier remains substantially constant with relatively large variations in input signal. It will also be found that signals above a certain amplitude (depending on the amount of control used) will not be amplified. This naturally applies only to the controlled stages. This gives the effect of clipping, but without noticeable distortion.

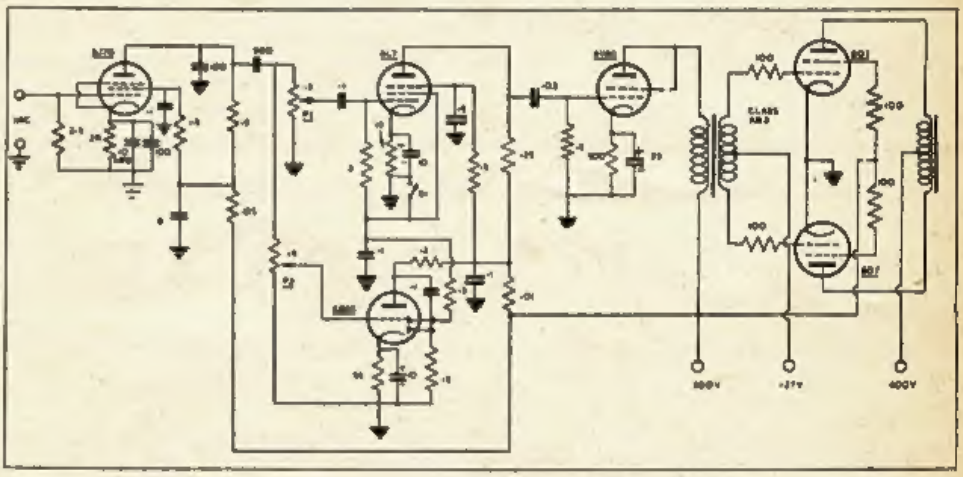
From the above it will be seen that a.m.c. enables the modulator gain control to be set at a much higher level than would be the case if a.m.c. were not used. This of course means that the carrier can be more deeply modulated, the limiting action of a.m.c. preventing side-band splatter. Experiments with the circuit shown indicate that the system responds to audio peaks of quite short duration.

The first attempts at a.m.c. utilised a 6U7G as controlled tube with control voltage applied to both the signal and suppressor grids, but results were very unsatisfactory. After consulting the A.R.R.L. Handbook it was decided to build up the circuit shown using the 6L7 tube in the controlled stage.

Results were much better, in that the a.m.c. was more effective, but not yet good enough and also the stage gain was so low that the modulator, using 807s in AB_2, had not enough output to show any signs of modulation on a 38 watt carrier when listening on the monitor. Some modifications were therefore made and the circuit shown finally arrived at.

The modulator now has enough output to fully modulate a transmitter of 75 watts input, the gain control being at maximum and the a.m.c. control about 15° from zero. When the a.m.c. is then switched out, the carrier is overmodulated.

It might here be mentioned that there seems to be no reason why the pentagrid or heptode converter tube should not be used instead of the 6L7, in fact, tests made by the writer on the control effects of grids number one and four on type 6A8 tube seem to support this view. The oscillator plate would, of course, be earthed.



The main point as regards the construction of the unit is to make the layout such that the leads around the a.m.c. circuit are kept as short as possible, otherwise instability may occur. The only lead that was found to be rather critical was from the plate of the first stage, but no trouble will be experienced if the coupling condenser C is connected straight to the plate pin on the socket. The value of C was selected to give the best results when using crystal mikes, type JT30; but with dynamic and carbon mikes it may be desirable to increase the capacity to about 0.02 uF.

Adjustments of the a.m.c. P2 is quite simple. It should be mounted on the panel with the gain control P1, so that it is easily accessible. This also applies to the a.m.c. on/off switch. S1. It will be found that the latter will very seldom be used, if at all, but it is a good idea to be able to switch out the a.m.c. if only for comparative tests.

First set P2 to zero, then adjust P1 for 100% modulation and advance P2 until speech clipping is audible. It will then be necessary to back off the latter control to the point where clipping just commences, i.e. just noticeable on peaks. Now you will have to increase the gain a bit to get back to 100% modulation; once again back off P2 slightly to avoid severe clipping. The above adjustments were carried out without the aid of a c.r.o., a check being obtained from a local Ham.

During the time that the writer has had this system in use, not one report of distortion has been received, but when asked for a report on quality, the answer has always been "very nice quality indeed OM." There is no reason why you should not have the same success.

* Uvadale Grove, Kew, Victoria.

A.O.C.P. CLASS

The Victorian Division A.O.C.P. Class will commence on Thursday, 12th January, 1950. Lectures are held on Monday and Thursday evenings from 8 to 10 p.m. Persons desirous of being enrolled should communicate with Secretary W.I.A., Victorian Division, 191 Queen St., Melbourne (Phone FJ 6997 from 9 a.m. to 6 p.m.), or the Class Manager on either of the above evenings.

Disposals Genemotors as A.C. Motors

BY L. W. WALLBRIDGE,* VK5UX

Some Hams who have purchased disposals equipment containing genemotors may not have considered the possibility of using these as a.c. motors.

The genemotors suitable for this conversion have both field and armature of laminated construction and they have

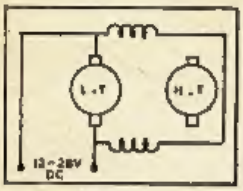


Fig. 1.

one set of field coils (consisting of a few turns of heavy wire) which are common to all windings.

Figure 1 shows how the genemotors are probably wired when purchased.

Figure 2 shows the alteration necessary to obtain a series a.c. motor by placing the field in series with the h.t. winding. (Use the lowest of the h.t. windings if the genemotor has two h.t. outputs.)

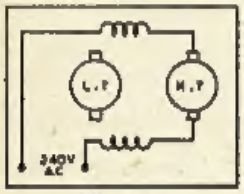


Fig. 2.

The trouble with the series motor as shown, is that it attains dangerously high speeds on no load because the field strength is weak and, for the same reason, the torque of the motor is low. Because of this latter characteristic, the machine quickly slows down and stops on any but the lightest loads.

If we increase the current flowing in the fields, the speed of the machine drops slightly, but the torque is increased. A cheap and effective method of doing this is to place a lamp across the motor as shown in Figure 3.

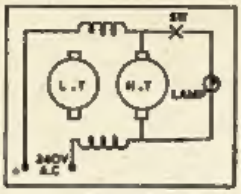


Fig. 3.

A switch will give a choice of two speeds. This idea can be carried further by using a bank of lamps, each with its own switch, to give a wide variation in speed (and torque). If a heavy-duty variable resistor is used in place of the lamps to vary the speed, precaution must be taken to prevent a short-circuit occurring across the machine.

* 21 Railway Terrace, Kadina, Sth. Aus.

AN IDEA

Ever short of a couple of points on a terminal strip?

A couple of brass paper fasteners in suitable holes solders easily and can be bent to suit the needs of the user.

TRADE REVIEW

Messrs. R. H. Cunningham & Co., Australian Factory Representatives for Stratton & Co. Ltd., manufacturers of "Eddystone" components and equipment, advise that a vibrator units is now available for the 640 Communications receiver.

The unit has been designed to permit operation of the "640" Receiver from a 6 volt accumulator, although it may be used with any receiver or other equipment, the h.t. consumption of which is not more than 65 Ma.

The unit comprises a transformer, fuse, non-synchronous vibrator, rectifier (6X5G), on/off switch, pilot light and the necessary filters to prevent r.f. interference. Smoothing is not included since the choke and condensers fitted in the receiver perform this function. A heavy cable is provided for connection to the battery, and a lead terminating in an octal plug, for fitting direct to the socket provided on the "640" Receiver. The unit is totally enclosed in a small metal cabinet, finished a smooth ripple black. The consumption from a 6 volt battery is between 5 and 6 amperes, dependent on load. Catalogue number is 687 and the price is £15/19/5 plus tax.

Stocks of the 669 "S" meter have now arrived, priced at £7/5/- plus tax. Both of these units are available from all "Eddystone" distributors.

Restricting Speech Range in Speech Amplifiers

This is a case of where you can get something for nothing, or at least, close to nothing. Before giving the punch line, though, let's examine the situation from the beginning.

Phone stations on the Ham Bands seem to fall into three categories regarding their speech quality. The first are the stations that will have no audio equipment in the shack unless it is capable of a flat response from 20 cycles to 15,000 cycles. Their quality is superb, and your ears would tell you so if it were possible to have a receiver and a reproducing system capable of handling this audio range at a time when propagation conditions allowed undistorted reception. These Amateurs are taking up needless space in the limited Ham spectrum by their activities, but as long as their carrier is inside the band edge by twenty to twenty-five kilocycles (in order to keep those wide sidebands inside the band) then, the P.M.G. will not bother them, at least not yet.

On the other extreme is the second group, small though it be. These Amateurs wish to have a transmitter that is as effective, communication-wise, as possible. Those who are on a.m. phone tailor their speech amplifier equipment until it transmits the narrowest possible audio range, leaving only enough audio range for complete understandability. A more rabid group goes even further, by partially eliminating the carrier and then transmitting only one side band. These Amateurs deserve a lot of applause, but we need not bother to applaud them, because they did this not for applause, but because they want their money's worth out of their equipment.

Which brings us to the third group, which must certainly include the majority of the world's phone men. This group is made up almost entirely of Mr. Average Phone Man and others of his ilk. Mr. Average Phone Man has a speech amplifier and a modulator which he copied faithfully from some handbook or some radio magazine. When he finished the audio end, he connected it to his c.w. rig, got on the air, and asked the first Ham he contacted the age-old question, "How's my modulation?" Aside from the fact that Mr. Average Phone Man should have checked his modulation with a scope, while transmitting into a dummy load, instead of depending on the advice of another Mr. A. P. M., this situation is quite normal and is to be expected.

WHY WASTE POWER

All right, you say, this is old stuff, so where's the pitch? Here it is. Why continue to waste power by transmitting certain audio frequencies if these audio frequencies are unable to help the other fellow hear you, especially when you can almost get rid of these unwanted high and low frequencies at practically no cost? To be specific about cost, the change can be made by the use of four 600 volt paper or mica condensers.

Before explaining how and where to put which condensers, let's make certain that another point is clear. This article has nothing to do with speech compressors, speech clippers, or sharp cut-off low-pass filters. The latter will do an excellent job of tailoring the speech range, but these filters may be rather elaborate. Speech compressors and speech clippers, on the other hand, do not affect in any way the band-pass characteristics of an amplifier unit. They may, however, affect the fidelity from a distortion stand-point. This is especially true of speech clippers.

One other point might also be explained here. The changes to be described are suitable for practically any type of speech amplifier. However, a restricted band-width is not assured if these changes are made in an amplifier which is used for n.b.f.m. If the swing is not carefully adjusted, the band-width may still be excessive. In other words, it is worthwhile to make these changes in an n.b.f.m. speech amplifier, but the effect will be nullified if the signal is permitted to swing too far frequency-wise, due to improper adjustment.

AN ECONOMICAL METHOD

Here, then, is what you may do to restrict the audio range of your speech amplifier in an economical way. First, attenuate the low audio frequencies by changing the value of two of the interstage coupling condensers and second, attenuate the high audio frequencies by adding a condenser from plate to ground on two of the audio stages.

The calculations to determine the proper size of condenser for each point are not difficult. It is first necessary to decide on the audio range you wish to cover. Let us assume that you want an audio characteristic which is down somewhat at 300 cycles on the low end and 3,500 cycles on the high end. To be more exact, this is one which will be down 6 db at 300 and 3,500 cycles, when changes are made to two of the stages. These two frequencies—300 and 3,500 cycles—will be used in the calculations.

The next step is to examine the circuit diagram of your speech amplifier. Most amplifiers consist of a pentode preamplifier, driving a triode or pentode amplifier, driving a phase inverter or transformer coupled amplifier which in turn drives the output stage. We are interested only in the first two tubes. We want to put a condenser from the plate of the first tube to ground, and one from the plate of the second tube to ground. Also, we wish to change the values of the condensers which are between the plate of the first tube and the grid of the second tube, and between the plate of the second tube and the grid of the third tube.

If the third tube is a phase inverter, it is best not to attempt to change the coupling condenser between the second and third tubes. The reason is beyond the scope of this article but it might be necessary to change the grid circuit of the phase inverter in order to get the proper effect from the changed coupling condenser. In this case, the coupling condenser can be changed between the microphone and the input tube. This is completely satisfactory if a dynamic microphone is used. If a crystal microphone is used, a different approach is necessary. Again this is not within the scope of this article, so that you will have to be satisfied with changes on only one tube instead of two.

The final step before starting the calculations is to check the value of the grid resistor to which the new coupling condenser will connect. This will be the grid resistor for the second and third tubes unless, as stated above, it is necessary to put one coupling condenser between microphone and grid, in which case examine the grid resistors for the first and second tubes. These resistors should be no greater than 250,000 ohms. If they are of a greater value, decrease them so they are 250,000 ohms or less. Incidentally, the grid resistor for the second tube is usually the gain control.

CALCULATION OF COUPLING CONDENSERS

The proper value of coupling condenser will now be one whose capactive reactance, at 300 cycles, is equal to the grid resistance in the grid circuit of the stage to which it connects. These words mean, simply, that the condenser value in micro-farads is equal to—

$$\frac{1{,}000{,}000}{(1884)\ (R_g)}$$

where R_g is the value of the grid resistor in ohms. This assumes that the low frequency point selected was 300 cycles. The figure of 1884 is 300 times 2 times pie. As an example, if the grid resistor is 250,000 ohms, the condenser should be 0.0021, so use a 0.002 uF. condenser. Make this calculation for both stages, and replace your present coupling condenser with the calculated value of condenser if it is not already that value. The low frequency audio tones are now taken care of.

CALCULATION OF PLATE BY-PASS CONDENSERS

Before starting the calculation of the plate to ground condensers, find out the plate resistance (R_p) of the two tubes involved. Most handbooks have this

figure. Next, check the circuit diagram and get the value of the plate load resistor which you are using. This is the resistor which connects directly to the plate at one end and is by-passed to ground (and connects to B+) at the other end. Next, get the value of grid resistor on the tube which follows the tube whose value of R_p you just looked up. Now, calculate the effective parallel resistance of these three factors, that is, of R_p, the plate resistance; of R_l, the plate load resistance; and R_g, the grid resistance, by the formula:—

$$\frac{1}{R_t} = \frac{1}{R_p} + \frac{1}{R_l} + \frac{1}{R_g}$$

For example, assume that a 6J5 tube uses a plate load resistor of 50,000 ohms. The plate resistance of a 6J5 is approximately 7,000 ohms. Assume also that the grid resistance of the next stage is 250,000 ohms The effective resistance of these three in parallel is 5,990 ohms. Call this R_t for the 6J5 stage. Incidentally, the R_p for triodes is low, as shown above. For pentodes, R_p will be very high.

The proper value of shunt condenser to connect from plate to ground is one whose capactive reactance, at 3,500 cycles, is equal to R_t. Stated again, simply, the value in micro-farads is:—

$$\frac{1{,}000{,}000}{(22{,}000)\ (R_t)}$$

This assumes that the high frequency point selected was 3,500 cycles. The figure of 22,000 is 3,500 times 2 times pie. As an example, if R_t is 5,990 ohms, then the plate to ground condenser calculates out to be 0.0076 uF., so use a 0.0075 uF. condenser. Connect it to the plate of the tube and to a convenient ground point. Make this calculation for both stages. This takes care of the higher frequency audio tones.

Let us now examine the change we have brought about in the speech amplifier and also examine what we have gained from this change. To do this, we shall have to assume that the response of the speech amplifier, before the change, was fairly uniform from 150 to 6,000 cycles. This is the sort of response which might be expected in a speech amplifier following general circuit practice. In addition, the response was probably only five or six db down at 100 and 10,000 cycles.

When you used your speech amplifier, before the change, you were modulating your carrier with all the complex audio tones that existed in the microphone output, over the 100 to 10,000 cycle range. Your sideband power, which is all that the other Ham is using to hear your signal, was therefore spread over a wide frequency range. It so happens that it takes a fair amount of modulator power to transmit the lower and higher frequency audio components which are not necessary for intelligibility.

By making the change in your speech amplifier, you now still have the same power in your side-bands, assuming that the percentage of modulation is the same, but you now have a great deal more power available to transmit the range of frequencies that really count, those between 300 and 3,500 cycles. Effectively, therefore, you have a "louder" signal, because you have increased power at the audio frequencies to which the other Ham listens. In round numbers, the increase in signal strength is about 6 db, which is the same as a four to one increase in carrier power, or the same as putting up an antenna with a 6 db gain over the one you were using.

To get an idea of the response curve which is obtainable, let us look at a speech amplifier which uses, for example, a 6SL7 dual triode for the first two stages, driving a third stage which has a 250,000 ohm grid leak. Assume that the aforementioned changes have been made. Now let us apply a pure tone at 1,000 cycles, the mid-band frequency, and measure the output of the speech amplifier. Next, apply a pure tone of 300 cycles. The output will be down 6 db, or four to one in power. The same thing is true for a 3,500 cycle tone. A pure tone at 150 cycles (and at 7,000 cycles) will be down 14 db, or twenty-five to one in power.

Thus, while the curve obtained is not of the sharp cut-off variety, it will give essentially the same results, and will certainly sound the same to the ear. Further, it was obtained at practically no cost.

The foregoing article was extracted from G.E's. "Ham News," July-August, 1949.

Checking Crystal Frequency with the Type 3 Mark II.

Regulation 136 states that the Amateur should listen on his own frequency to ensure that the channel is clear before calling.

This is particularly difficult to observe in portable work with the Type 3, and sometimes inconvenient, even at home. Here is a simple dodge which provides a neat solution for Type 3 users.

The idea is to switch on the crystal oscillator while in the "receive" position, and tune in the oscillator signal with the b.f.o. switched on. This is done in the following way:—

Immediately behind the 6L6 valve is an r.f. choke (L9) and a 0.002 uF. condenser (C11C), to the junction of which two leads are connected. One goes to the T-S-R switch and the other to the two screens via their appropriate resistors. Separate the 6L6 lead from the EL33 screen lead, and connect it to the T-S-R switch lead, leaving the EL33 plate and screen leads isolated.

Attach a resistor (about 50,000 ohms) to the 250 volt line, and connect a two-way switch so that one side goes to this resistor, one side to the original T-S-R switch lead and the centre to the EL33 lead. You will now find that this two-way switch will cut the crystal oscillator in or out when in the "receive" position without affecting normal operation when in the "off" position.

Crystal activity can be checked (switch position 3) and frequency determined without placing the transmitter on the air.

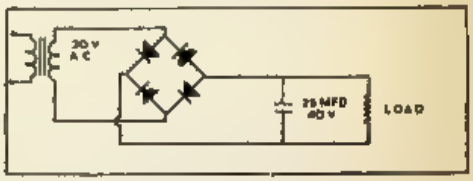
—H. REID, VK3RH

Cheap Rectifiers for Relay Operating Voltages

A recent advertisement indicated that a well known firm had for sale "MU4 Metal Rectifiers, 12 volt, 50 Ma.," at a price of one shilling each.

No information was available locally on the type, so I asked for, and was supplied, with six.

One of the six was marked "BE2-1-1/5 MU4" and some inquiry elicited the information that "BE2-1-1/5" was used in an Army type 122 receiver as a "crash limiter."



On breaking open the tropic proofing, it was found that two lugs were soldered together and, as a result, d.c. would flow in either direction through the unit.

Detaching the wire from the centre tap and wiring four units in a bridge supplied with 30 volts a.c., provided a d.c. supply of 28 volts which has been tested to load at 80 Ma. for over an hour without any trace of warming up.

I have put mine into use at a load of about 50 Ma. for three relays, and it is giving satisfactory operation.

—S. LAIDLER, VK5TL.

THE OLD MAN

The other day I heard a prominent Amateur putting on a turn over the air because he had received a Pro Forma from his local Radio Inspector. What he said about the fellows who are on the Amateur Advisory Committee made interesting listening. This chap felt quite sure that somebody had a grudge against him and a personal one at that. He just could not have been guilty of splattering, etc., etc. I was very amused to hear the station he was working tell him that he WAS splattering at that moment.

Why is it that you fellows take umbrage when that Pro Forma arrives? Is it because your dignity is hurt, or is it because you just can't take it? Surely it's better to receive a note from the Advisory Committee than to receive one from the Department. It is only one of your fellow Hams trying to do his bit to improve the bands and you can't deny they certainly can do with some improvement.

Let us take heed with what is happening in the States at the present moment and if we can continue to discipline our own bands it is far better than the Department doing it, THEY might suggest that you cease operation for a period. The Experimental Advisory Committee only ask you what steps you have taken to overcome the difficulty.

Talking of splatterers, they are still with us. VK2OQ, VK6DD, VK2ABA, VK5YQ and VK2AED were all taking their share of the band with a couple of others thrown in. If you fellows could see the band width you were occupying, I feel sure that your conscience would prick you very deeply.

VK2AED, it was a pity to list you because your phone was outstanding with perfect quality, spoilt only by the whiskers emanating from your sidebands.

There are still the few who want to be different in designating their call letters, and I heard VK4 Kilowatt Sugar, VK6 Nothing Doing, and a fellow who designated HIS call letters as **I'm a Queen**, with a great giggle after each announcement. I have purposely omitted his State prefix, after all if you wish to advertise the fact to the general public, I see no reason for giving you publicity for that statement.

It is nice to see that some fellows can admit they were wrong, and I congratulate you, VK6 Mike King.

VK2DG was heard with key clicks extending over a goodly portion of the band. It might pay to investigate this OM. It could have been a parasitic, I couldn't make up my mind on this.

The worst phone of the month was VK6HW with bad quality and a horrible ripple. Why can't you chaps, when told your phone is bad, immediately switch off and do some testing with a dummy aerial and a phone monitor? A phone monitor will tell you that your quality is good or bad.

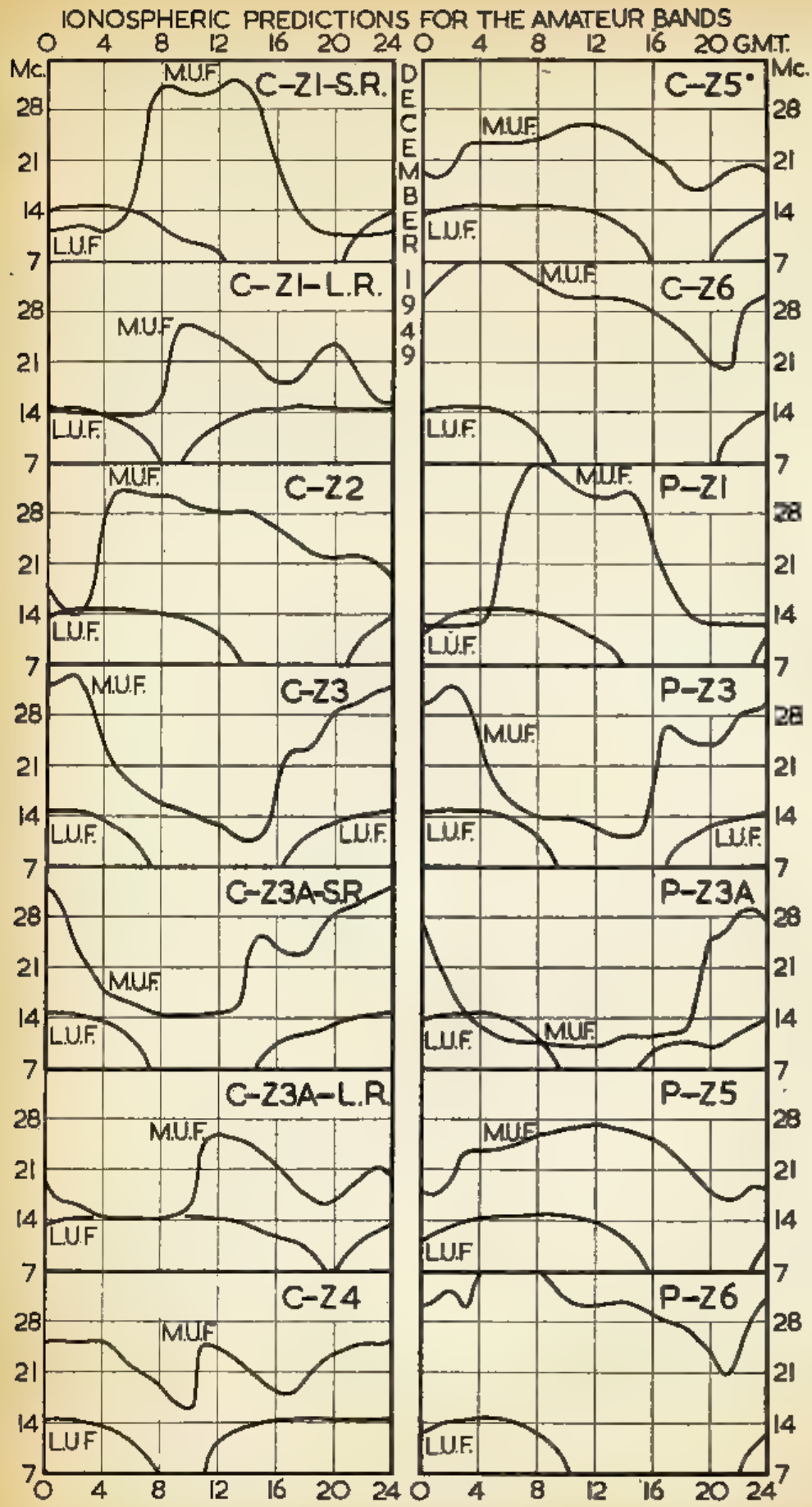
The long CQ merchants on c.w. are still about and VK3CG and VK4PO were heard sending endless CQs with an occasional call sign thrown in for luck. Listen to the fellows who really work DX and you won't find them cluttering up the air with useless CQs They invariably CQ twice or three times and then send their call, which after all is what the DX station is trying to get.

"The P.M.G's. Handbook for the Guidance of . . ." lays down very definitely that you must sign on and off when your carrier is put on the air. Yet how often do we hear a carrier come on and a voice say "You there Bill?" On comes another carrier with "Yes, Harry, let's look for Jim," and so on ad infinitum. Take heed fellows, the Department view this practice very seriously and you may be heard by somebody who is not on the Advisory Committee, but is being paid to do his spot of listening. Cheers until next month.

— . . . —

QUESTIONS AND ANSWERS

VK3RH would like to know: What is the correct (practical) manner of joining lines of different impedance, e.g., 70 ohm co-ax to 300 ohm line? Practical details please.



IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

DECEMBER, 1949

The accompanying charts have been prepared by the Ionospheric Prediction Service of the Commonwealth Observatory. The first set of the series was published in the November, 1948, issue of this magazine, together with an article explaining the nature of the forecasts and how to use them. Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

The Canberra charts refer to the following world zones:—

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3	N.-West America	San Francisco
3a	N.-East America	New York
4	Central America	Barbados
5	South Africa	Johannesburg
6	Far East	Manila

The forecasts have actually been prepared for point-to-point circuits between Canberra and the overseas terminals mentioned in the above table. It is, however, to be expected that the charts will provide an approximate indication of ionospheric conditions for all Amateur contacts from South Eastern Australia to the various world zones.

The Perth charts are similar to those based on Canberra. No forecasts are given from Perth to Zones Z2 and Z4 for the current month, as chart P-Z2 would be essentially similar to chart P-Z1, while chart P-Z4 might be unreliable due to auroral activity in high northern latitudes.

USE OF CHARTS

All that is necessary in using the charts is to select a time (G.M.T.) during which a specified Amateur band frequency is below the maximum usable frequency (m.u.f.) of the F region of the ionosphere but above the lowest useful frequency (l.u.f.) for the desired contact. In two cases, Zones 1 and 3a it is necessary to consult both the short-route (S.R.) chart and the following long-route (L.R.) chart.

QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Canberra-Mediterranean circuit would be useful.

1. Were conditions good on 7 Mc. from 1400 to 2100 hours G.M.T.?
2. Was the 14 Mc. band workable from noon to midnight G.M.T.?
3. Was the 28 Mc. band workable for several hours before Greenwich noon?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.

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EDDYSTONE "750"

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Featuring:—

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- Modern miniature valves.
- Three watts of audio.
- Double detection superheterodyne (1,600 and 85 Kc/s.).
- Stabilised H.T. supply.
- Provision for external S meter.
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- WILLIAM WILLIS & CO., 425 Bourke Street, Melbourne.
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- LAWRENCE & HANSON (ELECTRICAL) PTY. LTD., 120 Collins Street, Hobart.
- NOYES BROS. LTD., 36 Argyle Street, Hobart.

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BELLING LEE	Makers of the world's best terminals, fuses, aerials, etc.
LABGEAR	Famous range of turret tuners and transmitting inductances, wavemeters, wide-band couplers and scientific instruments.
L.E.M. Silvered Mica Condensers.	Known only too well to ex-Service Hams for their vast use in British radio and radar equipment. This is England's biggest S.M. condenser manufacturer.
ETA TOOL CO. .	Makers of precision built coil winding machines. (Used by Australian Government Departments.)
ACRU TOOL CO.	Producers of neon globes and holders for instrument or switchboard use. Working voltages from 110 to 400.
OXLEY DEVELOPMENTS LTD.	are the manufacturers of the miniature trimmer and ceramic condensers used in many famous receivers such as Eddystone and S.T.C. These are acceptable to Air Ministry standards.
ZEPHYR Velocity Microphones.	Australian made and generally superior to overseas competitors. Now used by many B/C stations, recording studios and P.A. companies.
A. & R. TRANSFORMERS .	These need very little introduction to VKs. This line is the tops in quality and performance.
SCOPE SOLDERING IRON .	Recently marketed throughout Australia. An iron with no wire elements that takes less than six seconds to reach solder melting temperature, yet only weighs about 4 ozs. A real MUST for radio men, professional or amateur.

Further details of any of the above products may be obtained from our distributors or by writing direct.

B.E.R.U. Contests, 1950

The dates of the B.E.R.U Contests for 1950 have been advanced for the first time, to the latter half of January. This has been done partly in order to avoid clashing with other International Contests and partly to permit the effective use of those bands which, later in the year, might be of little value for world wide communication.

RULES FOR TRANSMITTING CONTESTS

1 The event will be divided into four sections, namely:—

(a) Senior telegraphy (150 watts maximum input)
(b) Junior telegraphy (25 watts maximum input).
(c) Senior telephony (150 watts maximum input)
(d) Junior telephony (25 watts maximum input)

2. The contest periods will be as follows:—

Sections (a) and (b) from 1700 G.M.T. January 14, 1950, to 1700 G.M.T. January 15, 1950, and from 1700 G.M.T January 28, 1950, to 1700 G.M.T. January 29, 1950.

Sections (c) and (d) from 1700 G.M.T. January 21, 1950, to 1700 G.M.T. January 22, 1950.

3. The contests are open to all British subjects living within the British Empire and British Mandated Territories and to British Occupational Forces operating properly authorised stations, who are fully paid-up members of either the R.S.G.B. or one of the British Empire Societies. All entrants agree to be bound by the Rules of the Contests

4. Entrants who are not members of the R.S.G.B. must certify in the declaration that they were fully paid-up members of their local society at the time of the Contest.

5. An entrant not located in one of the prescribed Prefix Zones shall be considered as being in the Prefix Zone nearest to his station.

6. Contacts with ships or unlicensed stations located in countries where licences are obtainable will not be permitted to count for points. The decision as to whether a station is to be classed as unlicensed will rest with the R.S.G.B. Contests Committee.

7. Only the entrant will be permitted to operate his apparatus for the duration of the Contest.

8. Entrants must provide their own log sheets which, together with the analysis sheet and declaration, must be legibly written or typed as set out in the sample appended.

9. All entries must be posted within eight days of the close of the contest and bear postmarks dated not later than January 30, 1950, in the case of Telephony and Receiving Contests, and February 6, 1950, in the case of the Telegraphy Contest. No entries will be accepted by the R.S.G.B. Contests Committee, New Ruskin House, Little Russell St., London, W.C.1, later than May 8, 1950.

10. The judging of entries will be carried out by the R.S.G.B. Contests Committee. The Council's decision will be final in all cases of dispute. No correspondence can be entered into regarding any decision made by the Council or Contests Committee

11. Operation is restricted to the following bands: 3.5, 7, 14 and 28 Mc. (This rule excludes the use of the 1.8, 21 and 27 Mc. bands and frequencies above 30 Mc.) The Telegraphy Contest is open for type A1 (C.W.) transmission only and entrants receiving consistent tone reports of less than T8 will be disqualified. The Telephony Contest is open for type A3 (amplitude modulated telephony) transmissions only

12. The conditions laid down in the entrant's licence must be observed. The input to the valve or valves delivering power to the aerial must not exceed 150 watts in the Senior Sections, or 25 watts in the Junior Sections.

13 Only one contact with a specific station may be made on each band during the contest.

14. Fifteen points will be scored for the first contact on a specific band with a British Empire station located in any Prefix Zone outside the competitor's own zone. Fourteen points will be scored for the second contact on the same band with the same zone, thirteen points for the third contact, and so on, to the fifteenth contact, which contact will score one point. All contacts with that particular zone on that band thereafter will count one point each. This scoring procedure will be repeated on each band to encourage multi-band operation.

15. Serial numbers must be exchanged and acknowledged before points may be claimed for a contact. The serial number of 5 or 6 figures will be made up of the RS (telephony) or RST (telegraphy) reports plus three figures which may begin with any number between 001 and 400 for the first contact and which will increase in value by one with each successive contact e.g. 287 for the first contact, 288 for the second contact, etc.

RULES FOR RECEIVING SECTION

1. The Receiving Section will be concerned with telephony only and will run concurrently with the Telephony contest as given above.

2. The scoring system will be the same as for the transmitting sections, viz.: fifteen points will be scored for the first station heard on a specific band within any Prefix Zone outside the competitor's own zone. Fourteen points will be scored for the second station heard on the same band in the same zone, and so on. This scoring procedure will be repeated on each band to encourage multi-band operation.

3. Before points can be claimed, the following information must be logged (a) Call of station heard; (b) Call of station being worked; (c) Entrant's report on the signals of the station heard (RS), (d) The Serial Number given by the station heard to the station being worked.

4. CQ and Test calls will not count for points.

5. The same station may only be logged once on each band during the contest.

BRITISH EMPIRE SOCIETIES

Amateur Radio Club of India
Canadian Amateur Radio Operators' Association.
Canadian Section A.R.R.L.
Hong Kong Amateur Radio Transmitters' Society.
Jamaica Amateur Radio Club.
Malta Amateur Radio Society.
Montreal Amateur Radio Club.
Newfoundland Amateur Radio Association.
New Zealand Association of Radio Transmitters.
Northern Rhodesia Amateur Radio Society
Radio Society of East Africa.
South African Radio League.
Wireless Institute of Australia.

FORMAT OF THE B.E.R.U. ENTRY FORM

B.E.R.U. Contest, 1950.....Section

Name (block letters).....Call sign.

Address .....

Transmitter .....

Input power to last valve.....

Receiver .....

Aerial System used.....

Date	G.M.T. Contact Established	Band Used Mc.	Callsign of Station Worked	Serial Numbers Sent	Serial Numbers Received	Points Claimed
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					TOTAL	

Results of 1949 B.E.R.U. Contest

SENIOR SECTION PLACINGS—

1	VK2DI*	2365 Points
11	VK2ZO*	1901 ,,
12	VK6RU*	1802 ,,
14	VK3XK*	1736 ,,
19	VK2RA	1508 ,,
20	VK5FH	1504 ,,
24	VK4HC	1340 ,,
32	VK2GW	1231 ,,
39	VK3XU	1088 ,,
44	VK3CS	955 ,,
45	VK5OU	945 ,,
51	VK4HF	823 ,,
53	VK3YD	749 ,,
61	VK2TC	609 ,,
63	VK2HZ	606 ,,
74	VK3PL	437 ,,
75	VK5MY	430 ,,
76	VK3ACS	415 ,,
77	VK5LD	394 ,,
80	VK5DQ	318 ,,
86	VK2OW	100 ,,
87	VK3OJ	42 ,,

JUNIOR SECTION PLACINGS—

3	VK2QL*	1156 Points
5	VK4TY	1066 ,,
9	VK3UM	868 ,,
10	VK5RX	849 ,,
12	VK2ZC	624 ,,
14	VK3TX	501 ,,
18	VK3XB	128 ,,

RECEIVING SECTION PLACING—

4—BERS-195 ..... 1525 Points

Check Logs were received from VKs 2DG, 3RX, 3CX, 3RJ, 5KO, and 5MO.

* Prefix Zone Certificate.

DECLARATION.

I hereby certify that my station was operated strictly in accordance with the rules and spirit of this Contest, and I agree that the decision of the Council of the R.S.G.B., shall be final in all cases of dispute.

Date Signed . . .

If an entrant is a non-member of the R.S.G.B., he must sign the following additional Declaration: I hereby certify that at the time of the Contest I was a fully paid-up member of.....

Date ..... Signed. .....

Receiving Contest

The entry form for this contest should be prepared on the lines set out above with the following amendments.—

Column 2 G.M.T. station heard.
Column 4 Station heard.
Column 5. Entrant's report on station heard.
Insert new column: Station being worked
Column 6: Serial number given by station heard to station being worked.

PREFIX ZONE CHART AND SPECIMEN SCORE ANALYSIS SHEET

Prefix Zone	... Mc. Contacts	... Mc. Points	... Mc. Contacts	... Mc. Points	... Mc. Contacts	... Mc. Points
AP, VU2, 4, 5, VS7						
DL2, G, GC, GD, GI, GM, GW						
MB9, MD1, 2, 7 (ZC4), MF2, ZB1, 2						
MD4 (VQ6), MI3, ST						
VE1, 2						
VE3, 4						
VE5, 0						
VE7, 8						
VK2, 3, 7						
VK4						
VK5, 6						
VK9, VR4						
VQ						
VP1, 5, 7, 9						
VP2, 3, 4, 6						
VP8, VK1						
VQ1, 3, 4, 5, ZD6						
VQ2, ZE						
VQ8, 9, ZC2						
VR1, 2, 3, 5, 0, ZK, ZM						
VS1, 2, 4, 5						
VS6						
VS9, VU7, MP4						
ZD1, 2, 3, 4, 7, 8, 9						
ZL1, 2, 3, 4						
ZS1, 2, 3						
ZS4, 5, 6, 7, 8, 9						
Totals						

NOTE.—Some of the above prefixes may be out of date at the time of the Contest.

Make sure you have read the Rules carefully and do not forget to sign the declaration at the foot of the form.

Suggestions for future contests are invited.

Amateur Radio Club of India DX (International) Contest, Dec., 1949

The A.R.C.I. takes great pleasure in announcing the rules and details of the first International DX Contest which is open to all Amateurs in the world.

RULES

1. The contest is open to licensed Amateurs throughout the world. Certificates of merit will be awarded to the first three leading stations and also to the leading stations of each prefix zones provided at least three entries have been received from the zone in question.

2. Entries must be posted within seven days of the close of the contest and must reach the QSL Bureau, A.R.C.I., P.O. Box 6066, Bombay 20, not later than 26th March, 1950, marked "A.R.C.I DX Contest No. 2"

3. The decision of the A.R.C.I. Contest Committee will be final in all cases of dispute.

4. Only the entrant is allowed to operate a specific station during the contest.

5 The contest will be open for phone and c.w contacts. 20 per cent bonus will be awarded for each two way c.w contact.

(Continued on Page 24)

FIFTY MEGACYCLES AND ABOVE

Compiled by J. K. RIDGWAY, VK3CR.

REAL DX

October was certainly a most interesting month for 50 Mc. enthusiasts, particularly in N.S.W. and Queensland. As reported in these columns last month, on 9th October JA2AZ heard and was heard by VKs 2AH and 2ARG. THEN AT 2030 HOURS E.A.S.T. ON 20th OCTOBER, VK2ARG WORKED KH6PP, who was R5 S7-9 and Bob (2ARG) R5 S6-7 This contact was the result of patience and continuous effort. The band conditions at the time were negative, i.e. no beacons, etc., were heard

JA2AZ was also heard on 9th October by VK4CU between 2065 hours and 2130 hours, but signals were very weak. JA2AZ was also heard on 23rd October at 1845 hours by VK4FN whilst on the same date VK4ZU and VK4RY heard KH6PP. KH6PP and KH6NS had been heard earlier at SS between 1315 and 1500 hours by VK4HD.

ZL 2AA was heard by VK2VW at 1115 hours on the 29th October W6ZHA and W6ZHL were heard at 1000-1020 hours on the 28th October by VK2ARG

2CI heard a W on the 29/10/49. ZL1HP and ZL1DE were heard at 0830 hours on 30th October by VK2AH but on the 2nd November, KH6PP and KH6NS were worked for an hour by VK2ARG, followed by VK2XX, and KH6PP by VK2WJ and VK2AH. Ties were and bla from 0900 hours to 1040 hours. KH6NS was having difficulty to hear the VKs and was worked by VK2ARG and VK2XX and it's thought KH6NS worked VK2WJ QSB was bad and long fades were taking place towards the end. During this break through, an unidentified W station was heard by VK2ARG Phone, c.w., and r.w. were used

OA4AK was heard by VK4HR and a carrier the same day by VK2VW—0600 hours 14 10 49.

The band opened to Newcastle area for VK3 at 0820 to 1 26 hours on the 4th November VK2RU had an excellent QSO with VK6RT, but Sydney contacts were patchy and few

Lightning can do strange things. At Palm Beach on the 3rd November the lightning struck VK2ARG's ten metre beam which is the lower of three beams of all metal construction except for wooden element centre pieces. The wood charred and the reflector spun around to vertical!! Fortunately all antennae were grounded so no gear was damaged This being part of a freak storm which struck Sydney, first with a dust storm, and then heavy rain and electrical discharges.

It has been noted that freak weather occurs after severe magnetic disturbances and there was a "black out" in communication systems for several hours about the time KH6 was in. The ten metre band was dead during the break through and as Major 2RU says in November "A.R.," "Sporadic E" prevents the return to earth of reflected F2 stuff, so reducing the m.u.f. Ten metres started to liven up about 11 a.m.

The value of c.w is apparent, providing your receiver oscillator is stable (p.d.c. note) Keyed carriers with a.m. tone and f.m. tone modulated sound f.b.

Incidentally, v.h.f. news is broadcast on 50 Mc., not 50.4 The VK3 v.h.f. gang have set a fine example by clearing the low frequency congestion on the 50 Mc. band and don't forget to tune above 51 megacycles. Please note that the recent break throughs are stations using THE LOW END, so help yourself and everybody by keeping the low end as clear as possible Perhaps local contacts could be made on higher frequencies! In any case far too much power is being used for 5 and 10 mile contacts. Some justification can be said for it as break throughs are always on the cards.

VICTORIA

50 Mc.—At the time of writing the 50 Mc. band has just started to open for Interstate work. On the 5th of November 4HD, 4XN, 4RT, 4RY, 4CU, 4BT and 2ADE appeared on the band between 1740 and 2030 hours and worked a large number of VK3 stations. Signals were very good with peaks well over S9 and those VKs who made contact will have added substantially to their marathon scores.

During October the band was rather quiet, although it was well watched after hearing of the exploits of VK2s and VK4s with KH6s and JA2s. However none of this DX has been heard in VK3

The warmer weather has been attracting stations out portable again and we hope this form of work will continue through the summer On the field day on the 9th November, 3CI and 3DI were portable at Mt. Fatigue, near Foster, and 3ANW was at Mt. Dandenong, all stations had quite a number of contacts.

During the month 5GF paid a visit to Melbourne and worked quite a number of stations using his mobile rig 3AKE, of Geelong, has converted a 522 for 50 Mc. and should be on for two way work before this appears. 3VF, of Drysdale, is also interested in 50 Mc. and these chaps can be assured of a warm welcome on the band.

On the 30th of October, 3LI and 3CI went portable to Mt Major, near Dookie 3UI worked a number of Melbourne stations and heard 2PX of Tumut, over a distance of 160 miles. Conditions did not appear to be as good as on previous occasions, possibly due to the windy weather, and Alan hopes to be more successful with the VK2s next time he goes out The next field day will be on Sunday the 11th of December There is no restriction on bands used and it is hoped that all those with 50, 144 and or 576 Mc. portable gear will be able to go out

144 Mc—The population of this band continues to grow with new stations 3DY, 3RV, 3TG, 3VM, and 3RK appearing Due to lack of time, the writer has not been on this band as much as he would have liked and details of the gear in use at the first three stations has not been obtained yet However 3VM is using a transmitter consisting of 6J0 oscillator-trebler, 6AQ5 doubler, 6J6 trebler, and 832 final, modulated by a single 6AQ5 This rig has been designed for portable work and puts out a good signal 3RK uses a 522 transmitter and a 522 receiver modified to use 6AK5s in the front end. Aerial is a dipole and Ben has already been able to work 3VF and 3AKE.

3AKE and 3VF are still very active and the number of Melbourne stations who can work them is steadily increasing Signals have been varying somewhat, being best after a warm day and worst during wet weather

On the field day on 9th October, stations out were 3CI, Mt Fatigue; 3ANW, Mt. Dandenong; 3AKE and 3VF, on high ground near Geelong; and 3VL at Red Hill was on over the week-end using 2IM's gear Many contacts were had by all those on the band and in most cases signals were very good. 3CI worked 3ANW, 3VL and 3AKE (both at home and portable), but was unable to get through to Melbourne although he was heard by 3ED. 3AKE and 3VF worked 3CI and a large number of Melbourne stations as did 3ANW and 3VL. Altogether a good day was had, although the poor weather prevented some of the other stations with portable gear from getting out.

3ED, of North Essendon, has put up a 4 over 4 beam and is getting very much better results than previously, and several other stations have this type of beam under construction.

3KX, of Colac, is on using a 3 over 3 beam and a 522, he has contacted 3AKE and worked 3ZL crossband with 3ZL on 144 and 3KX on 50 Mc Ron hopes to work into Melbourne before long.

On the 30th of October, 3CI operated portable from Mt Major, near Dookie, and worked 3APF in Shepparton and 3YV in Wangaratta He was heard in Melbourne by 2IM, but no QSO took place.

576 Mc.—At last quite a number of inter-suburban paths have been broken down and good cross town QSOs up to 10 miles have been had on this band. 3DA, of Caulfield, has worked 3XA at Mitcham, approx. 10 miles and this stands as the home to home DX record at the time of writing. 3DA has also worked 3NW in Box Hill, at 7 miles, and 3NW has worked 3QO in Ivanhoe at 5 miles In all cases signals have been between S5 and S7 These paths are not line of sight and those who have made the contacts must be congratulated on the efforts they have put into getting gear going well enough to make these QSOs possible.

3XA has received S9 signals from 3RR at MacCrae over a distance of about 42 miles, and this also is a very good effort. On the 9th of October, 3ANW, portable at Mt. Dandenong, in teeming rain worked 3XA, 3QO, and 3ABA.

FEDERAL, QSL, and DIVISIONAL NOTES

Federal President: W. R. Gronow VK3WG; Federal Secretary: W. T. S. Mitchell, VK3UM, Box 2611W, G.P.O., Melbourne.

NEW SOUTH WALES

Secretary.—Dick Dowe (VK2RP), Box 1734, G.P.O., Sydney

Meeting Night.—Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney

Divisional Sub-Editor—L. D. Cuffe, VK2AM, 14b Watson Street, Neutral Bay, N.S.W.

Zone Correspondents.—**North Coast and Tablelands:** P. A. H. Alexander, VK2PA, H. . St., Port Macquarie, **Newcastle.** H. Whyte, VK2AHA, Vale St., Birmingham Gdns., Newcastle, **Coal fields and Lakes:** H. Hawkins, VK2YL, 27 Comfort Ave., Cessnock; **Western:** G. J. Russell, VK2QA, 116 Bogan St., Nyngan; **South Coast and Southern:** R. H. Rayner, VK2DO, 42 Pettit St., Yass., **Western Suburbs:** A. C. Pearce, VK2AHB, 48 Harrabrook Ave., Five Docks, **Eastern Suburbs** H. Kerr, VK2AX, No. 4 Flat, 144 Hewlett St., Bronte, **North Sydney** L. D. Cuffe, VK2AM, 770 Military Rd., Mosman, **St. George** J. A. Ackerman, VK2ALG, 33 Park Rd., Carlton, **South Sydney:** V. H. Wilson, VK2VW, Cr. Wilson St. and Marine Pde., Maroubra.

VICTORIA

Secretary.—C. C. Quin, VK3WQ.

Administrative Secretary.—Mrs. O. Crom, Law Court Chambers, 101 Queen St., Melbourne, C.1.

Meeting Night.—First Wednesday of each month at the Radio School, Melbourne Technical College.

Zone Correspondents.—**North Western:** R. E. Trebilcock, VK3TL, 122 Victoria St., Kerang. **Western:** C. C. Waring, VK3YW, 12 Skene St., Stawell, **South Western.** W. H. Ross, VK3UT, Ballangeich, via Warrnambool, **North Eastern:** J. A. Miller, VK3ABG, "Erinvale," Avenel. **Far North-Western Zone:** Harry Dobbyn, VK3MF, 43 Walnut Ave., Mildura, **Eastern Zone** Mrs. P. M. Churchward, VK3US, "Shirley," Red Hill.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI.—Sundays, 1100 hours EST, 7196 Kc. and 2000 hours EST, 50.4 Mc. No frequency checks available from VK2WI. Intra-State working frequency, 7175 Kc.

VK3WI.—Sundays, 1130 hours EST, simultaneously on 3580 and 7196 Kc. and re-broadcast on 50 and 144 Mc. bands. Intra-State working frequency 7185 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI.—Sundays, 0900 hours E.S.T. simultaneously on 3750 Kc., 7196 Kc., 14342 Kc., 52.4 Mc. and 144.138 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7065 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4 query service to VK4WI.

VK5WI.—Sundays, 1000 hours SAST, on 7196 Kc. Frequency checks are given by VK5DW on Friday evenings on the 7 and 14 Mc. bands.

VK6WI.—Saturdays 1400 hours, Sundays 0030 hours WAST, on 7196 Kc. No frequency checks available.

VK7WI.—Second and Fourth Sundays at 1000 hours E.S.T. on 7196 Kc. No frequency checks are available.

QUEENSLAND

Secretary.—W. L. Stevens, VK4TB, Box 638J, G.P.O., Brisbane.

Meeting Night.—Last Friday in each month at the Y.M.C.A. Rooms, Edward Street, Brisbane.

Divisional Sub-Editor.—F. H. Shannon, VK4SN, Minden, via Rosewood.

SOUTH AUSTRALIA

Secretary.—E. A. Barbier, VK5MD, Box 1234K, G.P.O., Adelaide.

Meeting Night.—Second Tuesday of each month at 17 Waymouth St., Adelaide.

Divisional Sub-Editor.—W. W. Parsons, VK5PS, 483 Esplanade, Henley Beach.

WESTERN AUSTRALIA

Secretary.—W. E. Coxon, VK6AG, 7 Howard St., Perth.

Meeting Place.—Padbury House, Cnr. St. George's Ter. and King St., Perth.

Meeting Night.—Watch the Monthly Bulletin

Divisional Sub-Editor.—George W. Ashley, VK6GA, 33 Mars Street, Carlisle, Western Australia.

TASMANIA

Secretary.—R. D. O'May, VK7OM, Box 371B, G.P.O., Hobart.

Meeting Night.—First Wednesday of each month at the Photographic Society's Rooms, 153 Liverpool St., Hobart.

Divisional Sub-Editor.—Capt. E. J. Cruise, VK7EJ, Anglesea Barracks, Hobart.

Northern Correspondent: C. P. Wright, VK7LZ, 8 Knight St., Launceston.

FEDERAL

DX C.C. LISTING

This month we list the complete members of the DX C.C. as follows.—

PHONE

VK3JD (1)	36	130
VK6KW (4)	36	124
VK6RU (2)	37	122
VK3BZ (3)	37	120
VK6DD (5)		112
VK3EE (10)		108
VK4JP (8)		102
VK3LN (11)		102
VK3IG (6)		100
VK5JE (7)		100
VK4KS (9)		100
New Members		
VK4JP (8)		102
VK4KS (9)		100
VK5EE (10)		108
VK3LN (11)		102

C.W

VK3BZ (6)	40	157
VK3GN (1)	40	148
VK3VW (4)	39	134
VK4EL (9)	39	134
VK2QL (5)	40	132
VK3KB (10)	39	128
VK2EK (3)	39	121
VK4HR (8)	40	119
VK4RF (11)	35	118
VK2EO (2)	40	115
VK4DA (7)	38	112
VK7LZ (17)		111
VK5FE (15)	37	109
VK3UM (12)	36	108
VK2GW (16)	38	107
VK4RO (13)		106
VK6RU (18)		104
VK5APA (14)		101
New Members		
VK7LZ (17)		111
VK6RU (18)		104

OPEN

VK3BZ (4)	40	178
VK2DI (1)	40	159
VK6RU (8)	37	158
VK3JE (12)	39	153
VK3HG (3)	40	146
VK4HR (7)	40	146
VK6KW (13)	39	144
VK3MC (5)	39	128
VK5KX (1)		126
VK4EL (10)	39	124
VK2ADE (18)		123
VK3OP (19)		126
VK2AHA (9)	40	123
VK2NS (16)	39	122
VK4KS (24)	36	121
VK6DD (22)		119
VK4DO (16)	38	118
VK5FL (26)	36	116
VK7LZ (23)		115
VK4RO (21)	38	109
VK2ZC (25)	38	108
VK3LN (29)		107
VK2YL (11)		105
VK2AHM (20)		105
VK4UL (27)	38	104
VK2VN (18)	29	103
VK3HZ (17)	39	102
VK2ACX (6)	40	100
VK2ADT (14)		100
New Member		
VK3LN (29)		107

At the time of going to print, VK2DI is Certificate Holder No. 27 of the Empire DX C.C. and the only Australian to receive this honor. From the Rules it is the most difficult of all DX achievements—heartiest congratulations, Gordon.

COUNTRIES LIST

Several reports are to hand that Tunisia's Amateur prefix has changed from FT4 to 3V8, although this is not an official notification of such change. The January issue of "A.R." will contain, as promised, the up-to-date Official Countries List as used by the A.R.R.L. and the W.I.A. for DX C.C. Awards.

W.I.A. ACTIVITIES CALENDAR

Dec. 3-4: Third European DX Cont. (phone).
Dec. 10-11: A.R.C.I. DX Contest.
Dec. 17-18: A.R.C.I. DX Contest.
Dec. 19: Motions for 20th Convention due with Divisional Councils.
Jan. 14-15: B.E.R.U. Contest (C.W. Section).
Jan. 21-22: B.E.R.U. Contest (Experimental Phone Section).
Jan. 28-29: W.I.A. National Field Day Contest; B.E.R.U. Contest (C.W. Sect.).
Jan. 31: Membership Roll of each Division due with F.E.
Feb. 19: Convention Motions due in to F.E.
Feb. 28: Convention Per-Capita due with F.E.; End of Fiscal Year of Divisions.

WIRELESS DISTRESS CALL METHODS

It is desirable that all Amateurs in Australia should be 'All Fair' with Distress Call Methods used by other services so that in times of emergency, the Amateur may further prove his usefulness to the community. A recent R.A.A.F. Bulletin describes the methods to be used for R.A.A.F. and civil aircraft in distress. Briefly they are as follows:—

500 Kc.—This is the main International distress frequency and calls would be made particularly between silence periods of 15 to 18 minutes and 45 to 48 minutes past each hour. These periods are observed by all ships and other stations with careful listening for distress calls. Most aircraft carry the Gibson Girl transmitter which operates on 500 Kc. In addition, twelve 4-second dashes at one-second intervals which operate the alarm system of ships and coast stations, can be transmitted. Later models of the Gibson Girl operate alternately on 500 and 8280 Kc.

3805 Kc.—This frequency may be used at night in some parts.

6500 Kc.—This frequency may be used by day in some parts.

6540 Kc.—This is a generally recognised h.f. International channel for distress calls. This channel will be most used if an aircraft makes a forced landing on land, and signals will go out at regular intervals until rescue is affected.

Various—The usual aircraft frequencies may be used if it is possible in the time available to send out distress calls on the working frequency prefixing with the appropriate SOS, Mayday, XXX or PAN.

Procedure—If an aircraft is believed to be down on the sea, listen on 500 Kc. and 8280 Kc. These signals will be weak and may best be heard during the silence periods.
If the aircraft is believed down on land, listen on 6540 Kc.

Action—Any Amateur hearing signals on any of the above frequencies, should follow the procedure outlined in the P.M.G. Handbook for Operators of Wireless Stations, or get in touch with the nearest R.A.A.F. or Aeradio Station without delay.

AMATEUR CALL SIGN CHANGES

Efforts are being made to again present this feature, so that our new call books will not become

redundant in a short time. Staff shortages have caused the present delay, but it is hoped that we will soon be able to print monthly lists as of yore.

PHONE-C.W. ALLOCATIONS OF N.Z.A.R.T.

Following communications between the W.I.A. and the N.Z.A.R.T., the N.Z.A.R.T. have advised as follows:—

3500-3550 Kc.—Application to their P. & T. Dept for the exclusive use of c.w.

7000-7030 Kc.—Already whole band entirely c.w., and no phone allowed. As VK phones interfere considerably they would appreciate our phones abiding at least by our "gentleman's agreement."

14000-14100 Kc.—Their present c.w. allocation is 14.1-14.2 Mc and we have been asked to consider extending our c.w. portion to 14150 Kc. in line with the Canadians.

21000-21150 Kc.—No comments on our proposal at this juncture.

28000-28100 Kc.—Ballot has shown the majority in favor, but has not yet been taken up with their Dept.

In view of the above, we urge all VK Amateurs to follow the voluntary agreement agreed to by the Divisions and as laid down in a recent Editorial, so that we may work in harmony with our ZL neighbors.

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FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

Interesting cards sighted during October are those of AC3NC (Sikkim), N. Chakravarti P.O., Gangtok, Sikkim State, via Siliguri, India; F..BAD (French India), D. S. Seal, Hatkhola, Chandernagore, with QSL address as Box 6668, Bombay 20; and VU2YL, Asha, complete with the owner's photograph on the obverse.

Attention is directed to the unique conditions attaching to the first International DX Contest organised by the Amateur Radio Club India. The rules for the contest which is for 14 and 28 Mc only and which covers the week-ends Dec. 10-11 and Dec. 17-18, appear elsewhere in this issue. This contest should be extremely interesting.

Ray Trackwell, ZE2JV, QSL Manager for the Radio Society Southern Rhodesia, gives the address of the QSL Bureau as Plumtree, Southern Rhodesia.

John, of VQ4CJC, states he has now completed his terrific task of sending out 100 per cent QSLs. Any station who has not yet received a card for contact with his station should write to him.

Gil'B writes ex Vancouver 22.10.49 (heading his letter "A dry Saturday afternoon," in contrast to our moist" wx), sends 73 to all his VK-ZL friends and Xmas Cheer. Jim hasn't been on the air much except on 3.5 Mc. as he is pro-tem special 1st electrician at a hydro station where the third 83,000 h.p. unit is being installed and has been perched thousands of feet up on a mountain side back in the bush from Vancouver where a river is taken through a mountain by a tunnel. QRM from 23,000 volt lines is mostly R max. so DX is impossible. Is trying to get on 20 and 10, so you may hear him on a VE call.

— • • • —

NEW SOUTH WALES

The October meeting of the N.S.W. Division was held at Science House, Sydney, on Friday, 28th October, at 7.30 p.m. Attendance was rather meagre, which was unfortunate for those who did not attend, since they missed something really good in the lecture. This was delivered by Mr. Angus Robertson, of D.C.A., his subject being "Antennae and Feed Systems." Certain fallacies and long-cherished theories in the sky wire business were exploded in no uncertain manner. It is hoped that an article by Mr Robertson dealing with this matter, will be published in "A.R." shortly. The meeting concluded at 10.45 p.m.

EASTERN SUBURBS ZONE

It is with regret that I have to acknowledge the presence in the Eastern Zone of several blights, the most prevalent being that of "rotary fever"—beam type, which seems to be keeping quite a few of the boys off the air. Talk of a phantom beam is becoming boring, would the phantom please do up a few notes for the zone instead of adopting these mystic tactics? Due to the fact that some of us have to work for a living and don't get around too much, we are unable to give the chaps in the Rose Bay, Vaucluse and Watson's Bay areas as much attention as they deserve—will somebody in those areas please contact 2AX, via FW 7053 and pass along the dope?

2KH heard at odd times on phone with good quality. 2TN on vacation in VK3 and doing his best to bust through with some c.w. 2QG suffered a shock when a W told him that he was 10 db over S9 and still doesn't believe it. Just shows, Ray, that you never know what you can do until you are pushed into it. 2YF suspected of connection with the "phantom beam" and threatens to make all other beams obsolete and useless when he hits the air. 2FJ making progress with the tower, at last sight was up about twenty five feet and fast becoming a Bronte landmark. Jack not heard too much of late except to moan about the cruel way the weather is preventing work on the tower.

2AZH whispered that somebody saw a long 5 x 5 pole moving in your direction, Bruce, whaffor? 2AFZ thoroughly occupied testing 807s in p.p. Good luck, Eric. 2AX still in the throes of rebuilding. Heard his XYL plaintively appealing to 2ML and 2AIG to persuade Andy to get his rig finished so she can find room for her new fridge and do a spot of cleaning. 2AIG busy building p.a. for 20. Keen DX hound on that band. 2CE wants some of the locals to hit 50 Mc.—what about it, chaps? It is the brightest idea that has hit the air in our zone for some considerable time. It only wants somebody to start up to make it the popular band for local rag-chews. How about it, YOU!

NORTH SHORE ZONE

Delete all reference in last month's notes on 2NT's 10 over 20 beam. The "10 over" isn't there, but the rest is, and functioning very well. 2TL is still plugging away at the final—this re-building certainly takes more time than estimated. 2AND about to burst forth into the ether at last. He's moving things indoors, so will probably run his QSOs for a while by keying the xmitter in the shack and then racing down to the house to turn on the receiver! 2XM has been chasing a slice of DX at his terra firma QTH in between voyages.

2PV has snagged his hundredth country at last but doesn't know yet if it's genuine or not—he worked 3V8AQ, who assured him that 3V8 is the new prefix for FT4. Pete's keeping those fingers crossed until the card arrives, anyway! Nice work by 2AH and 2ARG in reaching JA on six—how about a key in that rig, Alan? 2AMB climbing steadily toward that hundredth country. It won't be long now. 2ZH has severed connections with his old stand in the city—Sydney won't seem the same now! 2VN finding very little time for hamming now, his new family and building problems keeping him busy. Will hear him in a new QTH in under twelve months, IF all goes well. 2AM has discovered that zero bias tubes aren't, even if R.C.A. says they are!

[illegible] ZONE

The western gang have apparently been bitten by the v.h.f. bug. 2WH has 50 Mc. gear going also new rotary on 10. 2BT has also finally made 10 with 3 element rotary. 2AMV has phone going well on 20 and 40, has 40 odd countries up, not bad for a new Ham! 2AAF putting out good signal on 40 and is building 144 Mc. gear. 2AMR has re-built all his transmitters, works all bands 3.5 to 50 Mc. 2JW and 2ALX work each other across Orange on 144 Mc. 2XE has built a new Rx, also removed the bugs from his 40 metre gear. 2XP has phone on 40 and raised the 10 mx beam up to 30 feet. 2JC still mostly on 80, but heard occasionally on 40. 2NS picks up a new country on 20 now and again, building a rotary quad to replace the 3 elements on 10. 2ACU heard using a No. 11. 2EI with battery power gets out well on 40. V.H.F. man 2LY just packed all his gear away before the KHGs came through—better unpack it, Stan. 2LZ heard on 40, has a new home site selected, better QTH too. 2EX from Newnes Junction has arrived at Springwood to worry 2HZ, but won't be on for a while. 2HZ very pleased with a new 8JK. 2EP seldom operates these days.

HUNTER BRANCH

A very successful meeting of the Hunter Branch was held at the Technical College, Tighes Hill. New members were welcomed and presented with their membership certificates. It's good to see all the new boys joining immediately now we have a Northern Branch. Almost 100 per cent. W.I.A. in the North now. An interesting discussion took place on the last A.O.C.P. examination paper. I wonder if all the old gang would pass the present day paper!

Our President, 2CS, has been resting after working all that nice 10 mx European DX—guess the shock was too great after so many years. Bill 2CW very QRL with new job, have heard he may be giving up the Secretary's job due to shift work, certainly hope not, as Bill has put a lot of valuable work into the running of the Branch. 2NX has nice new frequency meter; not heard much, think the flying getting preference over Ham Radio. 2UY not heard for the month, giving the game a spell or getting too much at work? 2AGY pops nice signals on 20 and 10, very unhappy about noisy Cook's Hill, manages the DX though.

Another Police radio man, 2NL, been silent for months, hope recent illness has disappeared. 2OS been keeping Thornton on the map using 50 Mc. Worked the Mountains, 50 watts to an 807 on that band.

While on the v.h.f.'s, Dave 2BZ has a nice rig on 20, 80 watts to an 829, makes lots of Sydney contacts. 2ADS been on 2 working locals, but no luck to 2ADT in Cessnock as yet. 2UF works Sydney on 2 and gets S9 reports. 2FP has 110 countries up on 10 phone post-war, only wants 10 cards for DX C.C. 2AFS has terrific signal on 10 using 95 watts he tells me, his compressor works well too. 2PT getting some new countries on 20 phone, he wound up a nice b.g. transformer so will be QRO soon. 2AMM only heard on occasions on 20 and 40. Two new Hams 2AAI and 2AAN still pounding brass and doing well too. The back yard of one of these boys adjoins 2ZC's, perhaps they hear one another?

Associate Bert Watts passed the last examination, so there will be more QRM around Birmingham Gardens. Believe Varly Fitton also successful, nice work. Can 2XY rag-chew on c.w., at tea time was heard QSO a VK5; was still going at 11 p.m.! Can hear you solidly on 10 Tom. 2ZC trying 10 phone after good effort in contest, looks as if we have a 10 convert in Jim? 2LV back on 40 hope to hear more of you. Associate Gordon Sutherland still having Rx trouble. 2CI making a noise on 40, worked a few stations in the c.w. section of the contest. Most important news from Maitland is that 2XQ will be running the Hunter Valley emergency net—just the man for the job, having had lots of operating and administrative experience. 2DG finished the contest with a great score, something like 74 countries on 20 alone—conditions not being the best either; very solid on 10 in Newcastle.

2JZ still finds time to work 10 phone and puts a nice signal into Europe too. 2TY on 10 sometimes puts a signal into and works Newcastle on 2. 2ADX has plenty of punch on 6, was heard talking about his mobile rig for the car, what about some dope Jack. 2AKP must be "snowed" in with work these hot days, like to see you across the street Vic. Associate Charlie Hunt will have his ticket soon so we will hear another Ham from Maitland. Things quiet around Birmingham G. George 2AQD put up good score in 10 phone section of the contest, believe a VK6 in Darwin, who experienced better conditions, may pip George for 1st place. 2AHA has settled into new QTH, no beams up as yet but an old nepp has managed W.A.C. on 10 mx. The Africans are S9 on the nepp, so the QTH looks OK. What about some news from the silent blokes, write or ring 2AHA.

COALFIELDS AND LAKES

At the time of writing, news from the Lakes has not arrived, so notes from that area will be brief. Major 2RI' is hearing some DX on 50 Mc and is also prominent on 144 Mc. Jack 2ADT is keeping an ear for 50 Mc. DX, but so far nil heard, has 144 Mc. rig completed and working 2XX in Sutherland. Seems as if the v.h.f.'s will be Jack's hunting ground for the summer. Geoff 2VL working 40 and 6, has nice mast and rotary on the latter band also has the habit of hearing the rare things. Nothing heard of 2JZ. Bob 2TL is now a regular 6 mx man with 10 and 40 mx for an occasional DX flutter has a signal on 144 Mc. too.

2KF always seems to be building something and is putting out nice phone too. Max 2KZ's phone is also very good since the re-building, works 6 mx and can be heard chasing Ws on 10. 2YO going well on 10, should have a beam up soon. 2ALR, a new Ham to Cessnock, is getting his gear together and has already worked some of the 10 mx gang. No activity from 2WZ or 2MK and 2YL fairly QRL, but should be breaking out on the DX soon.

SOUTH COAST AND SOUTHERN

2XD and 2OO called in on the way to the big smoke. These two gents were very impressed with the set-up at 2OJ at Albury. 2OO's car was equipped with a Type A Mark III. series cathode modulated, plus single wire matched impedance antenna. 2AID and 2BW heard with very good sig-

nals and doing well considering the conditions. 2AKF is consistently good. 2EU active on c.w., believed to be a past master at the not-so-gentle art of jam drumming. Met Cecil 2NM of Young at the local dance hall he came over to hear Graeme Bell and Rex Stewart. Cec is selling gear and setting up business. Gear AT5, ARS etc. Ross 2PN heard briefly on Sunday—how is the new arrival?

2GU also active on 40 and six metres. Arch heard a W8 on 50, and works 2ARG mobile. 2WP has a new Command rig and building new final, has "beaut" p.a. tube. 2ALS has another Rx SX28, not satisfied with the tube line-up and replacing 1.4 volt tubes with 6.3 v. equivalents. 2PI still on holidays, his cobber of commercial radio, Harry 2EJ, is off to Colombo, sent his 73s to you Les. No less than 72 stations are licenced in this zone. Guess we have to get them all in the R.D. Contest next year. Monty 2JQ having trouble with new b.c. Rx. Old vibrator job free of b.c.i., but new a.c. job makes a good monitor. 2APV and 2ALN are keeping Wyalong on the map. George heard Listening to 2CM on 80 when static was lifting the Rx off my bench.

2TA at Young received and acknowledged 50 Mc. transmissions from 2WH, congrats Hugh on the first report. Jim 2AKE says too QRL these days, but has dual purpose antenna on every day except Monday. Jim 3JK called on 2ALS when passing through. 2ABJ the op, Jack Vasey, was in the same unit as 2WP, 2GU, 2HV, 2PX, 2GK and 2DO. Jack is a son of Major-General Vasey who was killed in an A/C accident during the war. 2ABJ has left for a twelve months' cruise aboard a launch. Worked my first 80 mx DX—W7MSB, but nearly received burst eardrums from the static for my efforts.

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VICTORIA

STATE CONVENTION

The State Convention of the Victorian Division will be held on Saturday, 21st January, 1950. The date has had to be put forward owing to Federal Executive requiring items for the Federal Convention earlier than previously. Hence Agenda items for the State Convention will have to be in the Council's hands by 20th December, 1949.

GADSDEN AND KINNEAR TROPHIES

Entries from all zones for the Gadsden and Kinnear Trophies should be forwarded to the Administrative Secretary, 191 Queen Street, Melbourne, C.1, before 20th December, 1949.

As yet no entries have been received, although monthly reports should have been forwarded by zone secretaries. Time is running short, so gather up all the activities of your zone and send this information in without delay.

RULES FOR W.I.A. (VIC. DIV.) HOME-BUILT TEST EQUIPMENT COMPETITION

The Committee has decided that the competition will be limited to "Home-Built Test Equipment" with definite application in the Ham shack. It is hoped by this means that interest will be aroused in a much neglected field. The competition is limited to members of the Victorian Division. Likely starters are requested to advise the Secretary of T.A.C. so that space requirements for the storage and exhibition of equipment may be gauged.

The equipment submitted will be adjudged on the following basis:—

(1) Ratio of commercial to home-built components employed
(2) Conciseness of written description accompanying unit. Description should cover constructional details, uses, general specification of ability, and operating instructions.
(3) Relationship between physical layout and electric requirements—or vice versa.
(4) Neatness of wiring and quality of soldering.
(5) Stability, general performance and calibration accuracy
(6) Utility of equipment for Amateur purposes.

The decision of the judges shall be final. Judging will take place at the State Convention, where all entries will be displayed.

Further details will be published in next issue of "A.R."

MOORABBIN AND DISTRICT RADIO CLUB

The first meeting of this Club was held at the Moorabbin Town Hall on Tuesday, 25th October. There was a particularly good roll up.

The club was duly constituted, and it was decided to affiliate with the Institute. Jim Keene, VK3KE, was elected President., Ted Scott, Secretary, and Ed Manifold, VK3EM, Treasurer.

Future meetings will be held at the Moorabbin Town Hall on the third Friday each month. Meetings will include lectures, morse code classes, social nights and demonstrations on v.h.f. equipment.

Anyone interested in joining the Club should go along on the third Friday, or they can ring the President, Jim Keene, at XU 2235.

NORTH WESTERN ZONE'S CONVENTION

This zone held their Convention at Birchip on 8th October, 1949. Present were. 3TL (President), 3OA (Secretary). 3BM, 3CE, 3HR, 3LU, 3ACE, 3GW, 3MF, 3CH, 3GZ, and Associates J. P. Troy, A. E. Page, J. Ryan, and R. V. Trebilcock.

The gang arrived at Birchip at 12 p.m., waist coats loosened, and made for the cafe for lunch. After lunch, 3TL and 3OA branded each member so as to keep them in check. They then proceeded to the local power station, of which 3CH is managing director and engineer, for inspection. Alf then explained the doings about d.c. After many questions were answered, they proceeded to the main water supply pumping station under the control of 3CH. Here again more explanations and ear bashing.

Next came the inspection of Birchip shacks of 3CH and 3ACE. When inspecting 3CH's shack, Alf really got going and demonstrated magic with slight of hand and then finally presented his second operator, the vent. doll, "Ginger." The gang was highly amused, it really got 3OA in. The boys then got interested in many of 3CH's old cards of early years. As, OA, and VKs, etc., of 1924-25 vintage. 3CH played with sparks in 1909-13 and crystal sets. Alf then showed the gang an imported receiver he brought out in 1924, of French manufacture, still new, and also a B.B.C. job which the gang were keenly interested in, being the first receivers in Birchip before broadcasting was introduced. Thus completed 3CH's shack.

The gang then went up to wreck 3ACE's shack. After inspection of an array of cards from various countries, and a good deal of ear bashing on various subjects, aerials and 3ACE's rig, they adjourned inside to the sitting room where the President 3TL introduced 3BM who gave a very fine and interesting lecture on amplication, etc., which was highly appreciated by the Hams present. Time was then getting on and the gang adjourned to the Commercial Hotel for their Annual Dinner, which was served in the best manner and attacked by the gang in great style. By this time, everyone was full and belts began to tighten.

Then followed the Annual Meeting, and after dealing with the minutes, financial statements, and correspondence, etc., the President adjourned the meeting for a while to have our quiz competition, the prize being a Rola Speaker (per. mag.) kindly donated by 3OA. The winner was 3BM after a big battle, and kindly donated it back again to be Dutch auctioned. Some very spirited bidding resulted in Gordon 3GW taking home the prize. This very good effort raised £6/6/- for the Food for Britain Appeal. The President then resumed the meeting, commencing with general business and called for election of office-bearers for the ensuring year.

Those elected were 3BM, President; 3OA, Secretary and Treasurer; 3ACE, Zone Correspondent and Disposal Officer. Before closing the meeting, 3BM spoke about the very able manner and ability of the Past President 3TL and Secretary 3OA in carrying out the last year's operations of the zone and thanked them. After a short discussion, it was agreed to hold the next Convention at Sea Lake if possible, or otherwise Swan Hill. The meeting closed and the gang adjourned to 3CH's premises where Mrs. Alf Harris and Mrs. Clyde Case prepared a very enjoyable supper. While the supper was being prepared, 3BM screened in the sitting room some very interesting technicolor 16 m.m. pictures of Holland. The poppies of Flanders and War Graves of our dear Australian comrades of World War I. taken by Bruce's father and mother while on holidays in Germany and the Continent.

3BM on behalf of the gang thanked Mrs. Harris and Mrs. Case for the enjoyable supper. One o'clock was reached and the gang dispersed to their respective homes. 3CH waited to see 3GZ and 3MF on the 3 a.m. Mildura express. Thus was a very happy end to the Convention.

NORTH EAST ZONE

On Sunday, 30th October, 3UI and 3CI left early for Mt. Major, and were on six and two metres by 10 a.m. Your hard-working correspondent heard rumours of the activity, so went along specially to report the doings, arriving about midday. 3UI was using a new set-up on 50 Mc. consisting of 6AG7 osc. tripler, 6AG7 dblr., 832 p.a.; 6SH7 pre-amp., 6SL7 phase changer, p.p. 6F6s mod.; 6K8-6J6 converter into Command rx., and all powered from 12 volt genemotors. A two element "T" match plumber's delight beam and a very flash chromeplated crystal mike were used. Alan worked 3BQ, 3DM, 3RR, 3YS, 3ABA, 3APF and heard 2PN of Tumut, N.S.W.

3CI was using his usual hotted-up 522 on 144 Mc feeding a cubical quad about 15 ft. above the peak of the Mount. Syd worked 3APF, 3YV and 3ABG, and was heard by 3DM. 3ABG also used a hotted-up 522, taking 26 amps. from the 12 volt car battery. Antenna was a haywire cubical quad, fed by line of wrong impedance and mounted on a twisted stick about 8 ft. high. This "carpenter's nightmare" worked extremely well, only troubles were it kept falling down, would not point anywhere but at the sky and all signal reports were bad. However we did work 3CI (ten yards away), 3YV and 3APF on 144 Mc. We learnt a few new words via 144 Mc. when Syd sat down on a Scotch thistle. 3UI was equally expressive about some hornets chasing him.

3ACW is teaching a YL to operate his rig, Joyce's voice has improved results on 7 Mc. 3ARG is back at Mangalore and has a new car. 3FD on 7 Mc. c.w. but battery charging limiting operation. 3YV spending spare time running in new car. 3HR changing antennae again. 3TS going to get back on six. 3AT, our President, certainly gets a good hook-up attendance. 3JK is in Sydney. 3WZ playing with motor cycles instead of kilocycles. 3APF and 3UI in the DX on six. Associate Ken Sloper has shown little interest lately; reason still Joan Cain of Lockaley. Bert Brown still listening on 7 Mc., but after keeping a YF and five juniors, not much cash is left for radio parts.

SOUTH WESTERN ZONE

Latest news of the month is that 3ABK has a carrier on his motor bike to carry the portable on, and I hear that 3AKE comes on 40 at times. 3IO has got a bit of DX in the way of a ZS and one in Tahitti, good work Bob for 40 metres. 3ALG has new modulator going well now. Geelong has another new Ham with the call of 3AJT and John has a nice rig going. The two Bills (3BU and 3WT) have been on 40 quite a lot with good signals, seeing that conditions are not the best.

3YE has struck oil by his signal these days and now runs about S8-9 and 3AGV still gets his share of DX on 20 metres. 3AKR able to work on 40 with his long wire, but wait chaps, for when Kevin gets his super vee beam up a half mile on each leg, we just won't work any more DX.

Had a good yarn to the old timer from Ballarat, 3MH. Mart has his antenna in his room, and puts in a fine signal down this way; one thing Mart, you won't have to re-tune when it rains in Ballarat. Heard 3EQ on the other day with a fair signal and clean phone. Also heard a voice that I knew on the high end of 20 and who should it be but 3HF, pulling the spider webs out of the rig.

The only news to hand from 3JA is that he is on 10 working the DX on phone, from what I have been told, Jack has tossed the key away. It seems as though the Ballarat boys are silent these days as I have not heard any for quite a long time, the only ones being 3BI and 3MH. One could hear 3BE, 3VA and 3GR on 40 quite a lot, so it seems as though the good old 20 metre band has a few more calls added.

Well chaps this is all for this year, so your scribe wishes all members of the zone the best for Xmas and the New Year and lots of DX, and must thank 3ALG for the notes from the Geelong gang. I must say cheerio, and next year your new scribe will take over and the best to him.

Geelong Amateur Radio Club

In spite of the adverse weather conditions on the first meeting of the month, there was a fair attendance of members when club member Peter Perkins gave an illustrated lecture on "Super Modulation." The next meeting took the form of a field night when an enjoyable and exciting night was spent by the boys. A transmitter operating under the club's call 3ATL was hidden approximately two miles from the G.P.O. and operated by 3WT and 3BY. Members set off and with the aid of "loops" and portable receivers to find it. First to locate it was 3AKE and 3ALG who took 33 minutes and next was 3ABK who took 1 hour 15 minutes. Other members were very close, but could not find the exact spot. Members went back to the club rooms to discuss bearings they had taken.

FAR NORTH WESTERN ZONE

Activity among members in our corner of the State seems to have decreased with the passing of winter. However several of the boys remain on the air and the Sunday morning hookup continues.

3FO and 3AFC of Ouyen have been holidaying in Melbourne and Sydney respectively and are back at the toil once more. 3AUG (pre-war 3UG) has been heard on 10 metres and his first post-war contact was a ZL, nice going Noel; now get some more coils wound OM and let us hear that f.b. phone on the local bands. 3GZ and 3MF journeyed to Birchip to attend the North Western Zone's Third Annual Post War Convention on October 8. They felt quite honoured in being the only visitors from outside the N.W. Zone. The zones not able to send representatives were certainly the losers as the boys were really done proud; the whole day and night full of interest and enjoyment, even if F.N.W. Zone couldn't pull off the technical quiz conducted by co-quizzers 3TL and 3OA. Finale of the Convention was the adjournment to Alf's 3CH home where, after an all too short session of 3BM's movies, supper par excellence (I believe it was more like a feast) was served by Mrs. Harris and daughters.

3MF, who has been off the air for about three months, seems to have been impressed with the whole show to the extent that at the moment he is walking around muttering "volts, watts and percentages," so a modulator must be going through the brain child stages and as a QRT is expected by him any day, switches look like being thrown soon.

Associate Jim Power has had a lot of trouble with the b.f.o. on his big double conversion receiver; hope you track down the fault soon OM. Jim sits for his ticket in January. 3QZ will soon have his BC453 hooked to his receiver, just waiting on a couple of 12 volt tubes. Anyone wanting a good key should get in touch with 3FC before Frank tosses his out. Rumor has it that a minor operation carried out on Jim recently was to remove the mike from his hand so he could go holidaying with the family. Ex-3AGF, now in Darwin with P.M.G., has not been heard yet, but understand he has a 522 receiver and pile of other gear. 3TI has a v.f.o. ready for calibration. 3GZ is very busy these evenings carrying out modifications to a TA12C recently acquired.

EASTERN ZONE

It is with sincere regret that the zone farewells 3OI, Syd Bryant, one of the keenest and most active Hams. His work on 6 and 2 metres is an example to all. We wish him health and prosperity in his new sphere. 3VL and 3US, Rex and Gwen Churchward, have all our good wishes in their new venture, which, fortunately for us, keeps them still within the Eastern Zone.

3SS and 3QZ paid their promised visit to 3WE, "The Old Man of the Mountains!" Bill has just bought a bank, and by the time this goes to press, will have moved his home and printing business thereto. Good luck Bill—one way of helping out with the labour shortage.

The really big news of the month is the new junior op. to our President, 3PR, Ron Jardine. Congratulations to Ron and the XYL. And here is some news for the old timers. During the week we visited 3MR, Snow Campbell, on his farm at Clyde. Snow is not active at present as he is too busy. However, Ham Radio is not entirely forgotten—there is the makings of a very comfortable shack with quite a lot of gear just waiting for the "master hand."

3DI, Jim Chilvers, is fast becoming our leading Ham. He is now building a new frequency meter to add to his already f.b. shack. Six and two metres hold no secrets for Jim. Congratulations to the junior op. of 3SS. David is now a student member of the W.I.A. and we have yet to meet a keener lad. 3TH and 3BB, Gordon and Bert, are putting in some good ground work for our forthcoming Convention. Don't forget the date! A.N.A. week-end, 28th of January, 1950.

CENTRAL WESTERN ZONE

First of all chaps let me remind you of prizes to be won by zone members during the coming twelve months:—

(a) Best improved signal on the 40 and 80 metre bands, plus zone hook-up attendance (1st and 2nd prizes)

(b) Most outstanding result on v.h.f. bands.

These will be worth winning chaps, so hop into it and to help the Committee in a difficult task, keep your Secretary posted with your doings to give them a lead.

Stawell is sprouting a new scenic spot in the shape of 3AKP's three element 20 metre beam. Keith is getting along fine with the construction, and should soon have it ready for testing. 3AKW is now finishing off the conversion of his R4/10FA receiver to a double if using 110 Kc if's and it should be very f.b. when completed. 3AGB popped up on our last hook up and made quite a surprise addition. Pete was having some hum trouble but soon cleaned that up. Another surprise was a personal contact with 3ATR, who walked into the shop one evening. Treb has a nice set-up on the farm. Spends most of his time on 28 Mc., and mending the vee beams after the birds break them down.

Our worthy George of 3GN fame has invested in a commercial modulator to the great improvement of his phone. George's shack is quite a pleasure to enter these days, posh looking gear all over the place. 3IQ is leaving the quiet of Carisbrook and departing to Melbourne to collect yet another commercial ticket. Kevin must be trying to beat the gun before they make 'em harder hi!

3XU is still very busy playing round with a commercial v.h.f. outfit, and seems to be having the time of his wicked life, still, can't make out why he was so sedate at Castlemaine. 3XU is busy shifting into a new address, no doubt Gordon was blown out of the old QTH by 3AWN's beam, it's a bad show to have a Ham just over the road.

3TA they tell me is running up a c.r.o. and is well on the way to having it finished. 3FI is another of the look and see gang, so the boys will not be able to say too much to either of them about their phone. Incidentally, 3FI's XYL now thinks Ham Radio is the goods, after Ray brought home the blankets.

For about the last four months 3YW has been working on n.b.f.m., mainly on 3.5 Mc., and after passing through various one and two tube reactance modulator units has settled down to push pull audio and balanced modulators as per "Hund's Frequency Modulation." It seems to work out very f.b., and is one way of demonstrating to the boys whether their a.m. receivers are selective or not; by the way, is there such a person as a Ham cum discriminator? They seem to be as scarce as hen's teeth.

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QUEENSLAND

The general meeting for October was poorly attended there being only fourteen present. The stormy weather that night no doubt made many members stay in the shack. The secretary reported that at the end of October there were 53 City and 60 Country financial members, and all told a total of 40 unfinancial. Remember chaps—one month behind with your fees and no more "A.R." Two months behind and down comes the chopper—no more member!

4MP suggested that when the lecturer fails to appear on appointed night, that a general discussion on technical points take place—question/answer session. Much better to have such a session than the fault-finding session that punctuates nearly every general meeting.

It was gratifying to learn that during October eleven more country Hams became members and that the Secretary has another fifteen applications from the country awaiting acceptance.

A perusal of the R.D. Contest score board reveals that six out of nine zone managers took part, whilst only two out of eleven members of the VK4 Council sent in logs. Rather a poor example for Councillors to set its fellow W.I.A. members. What about it fellow-Councillors? Let's make the 1950 R.D. Contest a "must."

[illegible]

Brisbane.—Only news of this zone for this month is what the Sub-Editor has gleaned from "reading your mail." Congratulations to 4AW, Arthur has now another in the family. 4ZU—we believe Howard is running 100 watts to p.p. 834 on 80 Mc. and apparently to very good purpose. Howard's signal was heard in KH6 but unfortunately did not hear the KH6 calling him. 4BO and 4KS piled up huge scores in the October Contest, believe Keith has a very high multiplier.

Ipswich (4SX).—Heard George of 4GG talking of a "Swan Song" visit to all the O.T. he knows—why "Swan Song" George? 4WL, late of this zone but now on Manus Island, had a very nice portable rig going. Wal used a 9002 driving a 6K6 at 6 watts, modulation was Heising with a 6K6 driven by 6SJ7. The receiver was a three tube regen., 9002, 6C5, 6K6. The antenna was a Gibson Girl Kite. On the same day, 9th October, 4CH took a No. 11 into the country, but found conditions very poor.

Welcome back to the 7 Mc. band to 4LT. Albert is a real country-ite now—time fully occupied managing general store, raising chickens, feeding poddies, and in his spare time "hamming" and singing the praises of Coomunya.

Gympie (4HZ).—Jim is taking things easy these days, given up linesman's job, no more trapeze acts for Jim. On the 9th October, 4HZ took an FS6 into the country, tested with various antennae and found the Windom best. Major changes have been made to the home rig too, and excellent quality phone is heard from there now. Congrats to Eric of 4XR and the new harmonic. A newcomer to the zone is "farmer Bob," 4RN out Woodford way.

4CM is fed up with the QRN and Col looks like going on 14 Mc. 4HD has a new portable using EF50 crystal oscillator, 1625 modulated by pair EF36s, driven by EF34. Believe Max also has a new 6 metre rig. Heard old-timer Alf Bauer talking over 4FS' mike the other night, it sounds as though Alf is contemplating a comeback. 4LN going quite gay. Barry is juggling the paint pot now—painting his "beams."

Bundaberg (4BJ).—Congrats to 4HE who has succeeded 4PG as chief of the local b.c. station. 4XJ is leaving Rockhampton to return to his home town where he will go into partnership with 4HE. 4BJ was out on the field day with a portable 3BZ with 12 volt generator for the transmitter, B batteries for the receiver, and antenna used was a single wire matched impedance.

Townsville (4QD).—New Hams in the zone who are also new members of the W.I.A. are 4WD, 4DH, 4FA and 4RU. During the month 4RW worked new countries in OR5, CO2, VP9, PK4 VQ4 and was unlucky to miss OX2 because another VK4 thought he owned the OX3.

Downs (4OG).—Conditions have been very patchy on all bands. 14 Mc. has given up the ghost in the afternoons now and W signals seem to be gone for a couple of months. 28 Mc. turns on the works every now and then. OK4DV has been giving a lot of the boys their first South American QSO on that band. Quite a lot of c.w. on the band too. Europeans come through regularly after 10 p.m.

Been hearing ground waves from 4BT and 4AP and 4HR. No news of 4RF but rumour has it that Fred will make a comeback shortly. 4XN has had the 'flu—the same applies to 4CU. 4DA has gone 26 Mc. minded, quad beam and all nickel plated fittings to match. Max also interested in mobile work. 4KK cutting saplings to raise 6 metre beam a bit higher so as to get through to Dalby. By the time these notes reach print, 4UX of Stanthorpe, will be a Brisbanite. 4ST has already settled down in the Brisbane Zone. Our sincere sympathy to 4RJ at the recent loss of his wife. 4TY often heard on 40 (believe a certain official recently remarked that Norm's rig would put a lot of commercials to shame—Sub-Ed.). Welcome to Bill Yates 4WY, a new Toowoomba Ham running 25 watts on the 7 Mc. band.

Student's Notes (J. P. Baker).—My first duty is to reprimand all Student Members who have not been attending the lectures every Thursday night at 8 p.m. in the Y.M.C.A. Rooms. On an average only four members have attended the classes regularly this year. Lecturers now have gear available to demonstrate their points. The standard of the lectures and demonstrations would be greatly improved if the W.I.A. were sure of a greater attendance. So what about it fellows?

On behalf of the students and W.I.A. members generally, we express deep sorrow at the passing of a student member Arthur Addis, who died during the last week of October.

By the time you read these notes, Christmas will be close at hand and the Sub-Editor extends Xmas and New Year Greetings to all members of the Wireless Institute of Australia.

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SOUTH AUSTRALIA

The monthly general meeting for October took the form of a visit to the Osborne "A" and "B" power houses, and the general reaction was that there should be more of this type of thing. A party of approximately 50 or 60 members departed from the clubrooms in a luxurious bus escorted by motor bikes, fruiterers' vans, and sundry other types of vehicles. The pilot, navigator, and head cook and bottle washer was Ross Kelly (5LW), and it was expected that a record breaking trip would be made. To say that our hopes were rudely dashed to the ground would be to put it mildly, and as the lights of the Osborne power house slowly receded from the back window of the bus, even the most optimistic of the members realised that Ross had erred in his calculations, and if we kept going we would be taking a dive off the Outer Harbour wharf. A near riot now broke out, and with Ross yelling out that the fare had gone up fourpence, and all the passengers yelling unprintable remarks at Ross, a very enjoyable five minutes was had by all.

Eventually, after one or two false starts, the right road was found, and with Ross still demanding an extra fourpence per passenger, we arrived at the power house. We then split up into small parties, and with each party accompanied by a very co-operative and helpful guide, an extended tour of the power house was made lasting about two and a half hours. It was pure coincidence that most of the turbines, meters, and associated apparatus was branded Parsons, but nobody allowed this fact to pass them by, much to my embarrassment. The tour of inspection concluded with the usual vote of thanks which was enthusiastically acknowledged by all present.

J. W. Bulling (5KX) who is a big butter and egg man at Osborne, and had acted as one of the guides, offered me a ride home in his car and therefore I did not return by bus, but my spies tell me that the journey home was uneventful except that the bus developed a petrol lock and arrived back in the city just in time for the members to scamper like a lot of rabbits across King William Street after their last trams. Anyway, a marvellous time was had by all and the programme organiser, Ross Kelly, is to be congratulated, even if he did not get the extra fourpence.

5FD has a couple of Selsyns to go with his prop motor and we may expect to see the "Plumbers' Delight" spinning madly in the blue sky at Mount Gambier ere long. John has had a spot of transformer trouble and now knows that the last few laminations can cause a heck of a lot of trouble after being forced into place. Rumour has it that he is talking of house building, so perhaps radio will take a back seat for a while.

5KU has finished the new transmitter and according to reports it really looks the goods. However, Erg is having a little teething trouble with it because it works better without the oscillator. 5JA is usually the first with the latest down at the "Mount" and once again he has stolen the limelight with his a.s.s.c. transmitter. John is using the filter system similar to 7LE and is on 40 metres. He is highly pleased with the reports to date. 5MS is anxiously awaiting the arrival of his new Eddystone receiver. How do you do it Stewart?

5CH has been very busy getting the bushfire fighting equipment ready for the coming summer months. Claude is also interested in 2 metres and

is building a transmitter and receiver for that band. 5TW has had a few contacts on 20 metres but the poet says 'in spring a young man's fancy turns to etc.," but Tom says, 'a married man turns to vegetables and the garden,' hence the few contacts. 5CJ has nothing startling to report but hopes to have h a v h.f. gear ready for the summer months. Anyway Col, you are a lifesaver to me with the notes, and your good work is much appreciated by the Council and myself.

By the way, it is a long time since I had any dope from the Northern Net, and I don't seem to have much luck with "Splatter" for my source of news. I was wondering if some enthusiastic Northern Ham, such as 5XL, would be kind enough to forward me some dope on the first of the month like Col Fergusson does, and believe me I will be only too pleased to write it up. After all, it would make it very easy for me, I wouldn't have to tell lies and use my imagination like I do to fill in. Always remember that I have no crystal ball to gaze into and get news of the Northern Net.

I believe that Rex Minchin (5XX) is shortly moving to VK2, in fact he may be there by now. Best of luck Rex, see you on the air from VK2 one day. My spies tell me that Al Smyth (5MF) is seriously considering disposing of his beam at a very reasonable price, due to a projected shift in QTH. Is that right Al? You are not thinking of moving toward Henley Beach, are you?

Lance Worral (5WF), who has the distinction of being my brother in law went twenty metre W A C during his first three weeks on c w, and of course is looking a leways at me because it took me almost a year to perform the same feat. My in laws are fast losing faith in me and it would not at all surprise me if they did not send me their broken down radios to repair. How cruel is fate. Had the distinction of meeting the Federal President (Bill Gronow, 5WG) at Doc's QTH the other night. Bill seemed a good sort to me, and with Federal Secretaries writing me letters on brown paper, and Federal Presidents shaking me by the hand, to say nothing of magazine Editors favouring me with little confidences (now don't deny it Tom) I feel that at last I am arriving (where—Ed.)

The boys at the best broadcast station in VK5 also had the pleasure of meeting George Hayman (5GH) who was passing through after a holiday in VK5. George seemed a typical Ham, and we all hope to hear you on the air soon OM.

I always seem to be moaning in these notes about lack of city news, but I have a good excuse this month because of my visit to Melbourne and Ballarat and consequent absence from the receiver, also loss of contact with my spies. Whilst in Melbourne I did not meet any VK3 boys except the Editor (Tom Hogan 3HX) and then only long enough to hand to him the eggs, cigarettes, petrol, flowers, butter, and sundry articles I had brought him from Adelaide. (Oh yeah—Ed). He impressed me as a regular bloke, although I was not very happy at the sneer that came over his face when I asked him for more space. I could have been mistaken however, it might have been indigestion. One or two impressions of my trip I will pass on for what they are worth. The first being that broadcasting station 3GL was the only station on the whole trip to give us music suitable to the busload of beautiful young ladies, and believe me we listened to a large number of stations. The rest of the stations seemed to be a little on the too classical side.

Major stop signs and red and green traffic lights were just a joke, if the bus dared to stop in obedience to them, the abuse hurled at us from the rear had to be heard to be believed. I also discovered that one did not politely stand aside for a member of the opposite sex to enter a lift or a tram, as more often as not she would knock one down in her anxiety not to lose any time. Twenty four hours in the great city and I was going through crowds like a full-back.

Also discovered that if there are any radio bargains available they are well hidden, although if one wants to buy any certain article particularly, there is a good variety to choose from at a reasonable price. A very plausible young man offered to do me a favour by selling me one or the other of the railway stations as a going concern. I asked for time to consider the offer, but he lost interest in the sale at this point. They seemed to be fairly busy too, and I wonder whether I was too slow or not.

Regarding Ballarat I will always have a soft spot for that place as my daughter won that coveted section "Graceful Physical Culture Girl" which incidentally was the first time in the history of South Street competitions that a South Australian had done so (don't you dare cut that out Tom) (I won't, not after seeing the picture in one of Melbourne's papers—Congrats. Audrey—Ed.) It goes without saying that she gets it all from her father. However it was a good trip and whilst I regret not having met a few of the VK3 boys, I expect I am to stagger along under their loss.

General satisfaction is being expressed in VK5 with the early arrival of the magazine these days, in fact it is quite a long time since I have heard any "wingeș" concerning the "mag" at all. Probably the calm before the storm.

One of the surprising features of Ham Radio in VK5 these days is the number of applications for membership which continue to come in. One time we used to chase the new Ham to join up, but now they chase us, and everybody is beginning to realise that the Ham organised is a strong unit, but unorganised he is like a voice crying in the wilderness. The practice in VK5 of permitting the youngsters to join the W.I.A. as associate members sure pays dividends, as it is from these youngsters that the future Ham will come, and if they join up early then they stay, instead of drifting away to other clubs.

By the time you have read these notes the festive season will be almost upon us, and once again it is my pleasure on behalf of Council to wish all and sundry the compliments of the season, and all best wishes for the coming new year. New resolutions will, of course, be made and broken, and if I can be pardoned for suggesting a new resolution for us all to try and not break, might I suggest that in the new year we all endeavour to put more into Amateur Radio than we take out.

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WESTERN AUSTRALIA

The screening of films again improved the attendance at the October meeting and a fairly good roll-up was seen. A familiar face to some of the older members was that of 6JE, Gus Clinch, an old-timer who hopes to find more time for Ham Radio in the future. Another visitor was a newcomer to the ranks, 6GU, John Harlock, who was seen later in the evening chasing a membership application.

Our President (6WH), having returned from his visit to the wise men of the East, gave the meeting a short summary of his activities at a Divisional meeting over t'other side where he availed himself of the opportunity to enlighten members as to the attitude of this Division towards Radio Clubs generally, and the Clubs in VK6 in particular. In fact, as 6WH pointed out, the largest club in this State is actually a member of this Division and has in its ranks many W.I.A. members.

The members of this Division desire to convey to VK2 members in the flood areas congratulations on a fine job well done in the recent emergency. Their action is probably the finest type of publicity our hobby can receive.

A letter from the Geraldton and Districts Radio Club was read to the meeting. This gave news of the winding up of that body and enclosed a donation towards the Divisional Building Fund. The President advised that an annual allotment would be made to this fund by the Division in future.

Members were advised of the preparation of pennants to be held by the trophy winners in Divisional Contests in future. A Committee was appointed to handle arrangements for the Annual Dinner to be held on 25th November. Included were 6WS, 6QM, 6IQ, 6KW, 6RO, 6WT, and 6NI.

The business of the evening concluded with the presentation of DX C.C. Certificates to 6KW, 6DD, and 6BU. Further films and the usual ragchew brought the meeting to a close.

[illegible]ANALITIES

Top of the list this month are two proud Poppas; 6FW and 6AS. Both still frequent 28 Mc. on occasions. Alec is doubly pleased as his rig has reached the full 100 watts at last. 6WZ forced to spend a week or two on his back in the local hospital and to add to the torment took his Ham receiver with him. Before going, however, Harry put in some good work with his new two element to dig out a rare one, CR10AA.

Also heard 6RL at Northam clicking with what the operator claims is the first official station on Portugese Timor. Heard 6EL has some a.c. at last—he's making his own with a vibrator set-up—it lights the filaments, which is a big item on d.c. mains. 6BU is hoping to occupy his new QTH very soon with a new 40 ft. tower for his beam. The quietest member of the Carlisle gang these days is 6ES. Ron has a lot of gear on hand, in fact I think there is so much he can't make up his mind which to use first!

Recently returned from Geraldton holidays, 6DJ has found his interest revived by the efforts those low-power boys put out on low power. Bill threatens to join the gang on 10 any day! 6TX explained his absence from the bands as due to a shift of QTH and a certain amount of re-building involved. Attention 6JS! I am told you have a new secret type of antenna, an inverted bath-tub; that would be in the same class as 6FW's modulated bedstead, wouldn't it?

Passing 6SA's residence (shining with new paint after Jim's holidays) and among the many antennae beheld a bright new vertical 10 metre beam. However Jim says it works just as well without the parasitic elements, so he rolled them up. Saves turning it too. 6CF still chasing the ultimate in beams, has now a four element job chasing the rare ones on ten. 6KW also alert for any new ones sneaking through. Ron put in some solid work on the OQ Phone week-end. Another DX'er, 6DD, was pleased to make his Bolivian contact on ten the other day. That only leaves the Guiannas now, so go to it John.

6CK, the feller who pulled his gear down to study, has now completed his exam, and is said to have a Command type transmitter under modification. A much envied VK6 this month is Tom Mulder, 6MK. The reason, one only Collins 75A receiver. Nice work, Tom, and I hope it really works as well as they tell us it does. Another chap to realise that "If you can't hear 'em, you can't work 'em" is 6JK who has a new receiver on the bench. 6GR heard again on ten. Jack is putting the final touches to a very complete looking three band rig which he says will stay put when it is finished, so we should hear more of Jack in future. 6FR finds little time for Ham Radio these days, but still has a good receiver to keep in touch with activities.

Recent visitors to VK6 were VK3FW who stayed with 6FL and a m/m ZAKH who found time, while in port, to visit several ham shacks. Heard on forty arranging 50 Mc. skeds was a new Ham who is very keen on v.h.f. work, 6BO. Can still hear the DX answering the country chaps, so they must still be active. With as much chance of an answer as a 5-watt "peanut-whistle" in Kilowatt Alley, might I again request a few lines on the activities in the country? Hope I see some of you at the Dinner and that you all get safely home again.

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TASMANIA

Owing to pressure of work I have not been able to get around or even listen much lately, so Geoff Clark has kindly stepped into the breach and has produced a summary of the doings for this month. So without further ado, thanks very much Geoff, it's all yours!

By dint of considerable detective work it is possible this month to present some more or less presentable notes. 7SK is far more popular, now, since he has succeeded in compressing his compressor. Hear you are moving to Mt. Nelson shortly Max. Some fellows will be pleased. Others, well, let's wait and see. 7BM heard on 20 regularly bowling over Ws. 7PA recently visited the North-West Coast. Was heard paralysing the ether from 7AB's shack. Quite some party, eh Doug?

7KA building a modulator. 7DH can either suppress one sideband, or the carrier, but not both simultaneously. Looks like that phase shifting network, isn't it Dave? Anyway, d.s.b.s.c. is something! 7AF worked a CT1 the other afternoon and hasn't recovered yet. Is also having modulator trouble—but hear the new power tranny is due shortly—that's it Bob, it's audio wot counts. 7OM heard on 40 very late the other night, or should I say early one Sunday morning, working a VK5. Even the VK6s had long since gone to bed. 7GJ thinking of building a v.f.o. Going to "Clapp" it together, eh Jack. 7CA been posted to Northern Tassy and has the problem of shifting his rig or building afresh. 7JB heard pushing the key on 10, in one of those multitudinous DX contests. 7TR moderately active, believed to have been heard on c.w. Miracles will happen.

7AJ and 7DH getting all teed up for the 6 metre DX (?) season. 7LJ worked a couple of new countries. Hope they come good Lon. That would put you pretty close to the coveted 100 countries. 7XA has natty little beam motor assembly to hand. Wonder what it's for Charlie? 7BH active on 40 phone, but restricted for antenna space, has the 60 ft. high P.M.G. building right next door too. Wouldn't it, Brian. Also having hum trouble. Throw that mike away, OM. 7GB works Ws on 40 c.w. 7SD another c.w. man. Don is getting ideas on "modulashun"!

A newcomer, 7DA, "Ack" Anderson, has been working the ZLs on 40. Has 6V6-807 and f.b. home-built eight tube rx. 7SJ's mike seems a bit too sensitive to harmonic QRM. 7AF heard a CI, went to call him and there was 7AL also. Bob didn't even try then. 7SK believed to have annexed a mobile power station for next National Field Day Contest. Nothing like making sure there are no flat batteries, Max. 7TA rather chagrined as has bet 7SK will beat him—but not with an AR88 and H.R.O. Geoff is buying out the local shops, and still building; recently visited VK3, travelled a colossal distance in a few days, visited most of Ballarat shacks, and returned with some useful gear, including a dozen nicely spot-welded aluminium chassis. Phew! Has also purchased 7GJ's beam tower, but no place to put it. 7BM forsaken the lower bands forever and gone v.h.f. permanently.

7EJ playing with supermodulation, with some success. 7EJ runs car without any coolant. Saves water anyway, Ted. 7OT seen in town, but not heard. 7FM active on 40. 7RY gone down to 2 metres it seems. Well chaps that about takes it off for this month, conditions have been lousy on 20 and 40. Ten metres is gradually improving and it shouldn't be long before those S9 plus 60 db signals start coming through! Anyway, 73 for now until next month.

(Continued on Page 23)

JUST ARRIVED

CONTROLS—

Main Tuning.
Aerial Trimmer
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Audio Gain Mains On/Off.
R.F Gain
Bandspread/G.C. Switch
Noise Limiter
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The "Commander" Double Superhet.

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VALVE COMPLEMENT—

Type 7H7 R.F. Amplifier.
" X81 First Mixer
" 7H7 1600 Kc. I.F. Amplifier.
" X81 Second Mixer
" 7H7 100 Kc. I.F. Amplifier
" 7R7 Detector and A.F. Amp.
" 6H6 Noise Limiter.
" L63 B.F.O.
" KT61 Output Amplifier.
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ADDITIONAL FEATURES

★ Automatic volume control applied to R F , 1st I F , second mixer, and 100 Kc. I.F. Output flat within 10 db with input varying between 3 and 100 000 microvolts.

★ Illuminated S meter included. S9 equals 100 microvolts. 6 db per S unit

★ Attractive steel black crinkle enamel cabinet, 22½" x 14" x 12½".

ADDITIONAL PERFORMANCE

★ Audio output 3 watts into 2/3 ohm Speaker. Headphone output suitable for high or low resistance phones.

★ B.F O. operation on low 100 Kc. I.F. ensures high stability and freedom from drift.

★ Aerial input balanced or unbalanced to earth. Signal/Noise ratio substantially constant with input between 70-400 ohms.

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AUSTRALIAN AND NEW ZEALAND FACTORY REPRESENTATIVE . . . **BRIGHT STAR RADIO** 1839 LOWER MALVERN ROAD, GLEN IRIS, VIC. Phone: UL 5510.

NORTHERN ZONE

Mr. Arnold Wolff gave the long awaited lecture on the equipment used in Launceston's two-way radio equipped taxis at our September meeting. This was installed in a fleet of taxis by Philips (Aust.) Ltd. so that a base station could keep in constant touch with the cars and so direct them from one call to another without the necessity of the cars reporting back to base. The advantages of such a system are too numerous to mention and the description of the equipment used made a very interesting lecture.

Evidently the present trend in the zone is away from DX and the lower frequencies because at present 7BQ, 7DB, 7TE, and 7PF are either building, or have just completed, 144 Mc. crystal controlled transmitters.

The only active stations on the lower frequencies at present are 7RK, 7LZ and 7RB, the latter stations operating on telephony only.

This portion of the year could aptly be called the Contest season. Last month I commented on the first week-end of the VK DX Contest. If conditions were as bad elsewhere as they were here for the remaining periods, the least said the better.

The telephony section of the CQ Contest has just concluded. Judging by the interest shown by overseas stations, this is certainly going to become one of the leading DX Contests in the world.

Conditions, although erratic, showed a decided improvement over the previous week-ends and all continents were heard competing. The major breakthrough appeared to be east and west and it was surprising the number of good signals from the Central American countries. Outstanding amongst these were TI2HP, XE1A, XE1AC, YN1OC, HR4AF, TI2OE, HP1TS, and HP1LO. YK1AC in Damascus gave several VKs and ZLs a new country.

Naturally all members were very pleased to hear that Tasmania had won the R.D. Award. Who will have the trophy twelve months from now remains to be seen, however, judging by the comments heard during the Contest period, all those competing had a grand time and next year's battle should be the best yet. Our congratulations go to 2PA, 7KB and 6RU for their magnificent scores.

One disappointment was the large number of non-eligible entries from all States. VK7 appeared to have a high percentage until the other States were also checked. This gave the rather astonishing percentage figures shown. VK2 25.5, VK3 26, VK4 21.7, VK5 16, VK6 20.5, VK7 20.7. This just goes to prove that near enough is not good enough for the judges. The winning State will require to do better than this next year.

The November meeting of this zone is to be a business and general discussion evening, so all members are requested to attend. Bring all your bright ideas and be at the King's Hall at 8 p.m. on Friday, the 9th of December.

ABSTRACTS FROM OVERSEAS MAGAZINES

"Single Sideband for the Average Ham," W. M. Rust, "QST," August, 1949, p. 47.

The simplest s.s.s.c. rig yet seen. Uses the phasing method, but does away with as many tubes as possible (leaving only six).

"Simplicity On Six," E. P. Tilton, "QST," August, 1949, p. 40.

6AG7 oscillator-doubler with 56 Mc. crystal, 829B amplifier with 100 watts input.

"Technical Topics," "QST," August, 1949, p. 32.

Adjusting the antenna coupler and harmonic filter for best results.

"A Power Distribution Panel," B. B. Bose, "QST," August, 1949, p. 30.

Some thoughts on neat ways of handling the a.c. supply to the rig.

"The Coffee Can V.F.O.," E. Hayward, "QST," August, 1949, p. 22.

6V6 Clapp oscillator on 80 metres driving 6V6 untuned buffer.

"Noise Generator Technique for the V.H.F. Man," E. P. Tilton, "QST," August, 1949, p. 20.

Noise generator for 28, 50 or 144 Mc. One of the most useful gadgets a v.h.f. man could have, but uses a 5722 tube.

"A Super Interlaced Beam for 10 and 20 Metres," A. Usher, "QST," August, 1949, p. 17.

Four elements on 10 metres and three elements on 20 metres, mounted on the same boom.

"A 28 Mc. Installation for the Car," G. P. McGinnis, "QST," August, 1949, p. 11.

2E30 crystal oscillator, 2E24 amplifier, modulated by p.p. 2E30s. Discussion on the best means of control, antennas, etc.

"Crystal Ball For Your Mobile Rig," G. M. Brown, "CQ," August, 1949, p. 26.

A combined S meter, carrier meter, and modulation level indicator.

"Ohmar II.," W. A. Sparry, "CQ," August, 1949, p. 24.

An improved audio milliamp., volt and ohm meter for the sightless Amateur.

"A Quick Change of Pace for the Prop. Pitch Motor," D. Saunders, "CQ," August, 1949, p. 20.

By eliminating one of the gear reductions, the output gives 1 r.p.m. with 9 volts a.c. on the motor, which quietly ticks over at about 1,000 r.p.m. Very full instructions and photographs for performing the necessary operation.

"Tone Modulating the BC221," J. E. Pitts, "CQ," August, 1949, p. 14.

Uses the existing tubes to produce RC oscillations.

"A V.F.O. for the Mobile Rig," J. Grimes, "CQ," August, 1949, p. 11.

6K6 as electron coupled v.f.o. on 7 Mc. Emphasis on small size and rigid construction.

"The Attic Ambler," P. F. Lucas, "Short Wave Magazine," August, 1949, p. 458.

An indoor aerial for 7 Mc. which wanders about in all directions under the roof. Seems to radiate equally well in all directions.

"Case Against the N.B.F.M. Mode," P. F. Cundy, "Short Wave Magazine," August, 1949, p. 430.

By considering the amount of power in the side bands, concludes n.b.f.m. is a poor second to a.m

"Triode Converter For Two," W. J. Crowley, "Short Wave Magazine," August 1949, p. 442.

6J6 push pull r.f., 6J6 push pull mixer, 6J6 push pull oscillator. Gives noise figure of 4 db which is approx. 6 db better than a 6AK5 r.f. stage.

"Practical S.S.B. Driver, Part II.," H. C. Woodhead, "Short Wave Magazine," August, 1949, p. 425.

Continuation of description of s.s.s.c. rig using a balanced modulator to remove carrier and a filter of the crystal gate type to remove the unwanted sideband.

"Beam Design and Adjustment," W. A. Sparks and S. S. Leigh, "Short Wave Magazine," August, 1949, p. 422.

Full of information on 2, 3, 4 and 5 element beams. Gives dimension, gain, radiation resistance, angle of radiation, front to back ratio, etc.

"Double Superhet For Ten, Part I.," A. B. Wright, "Short Wave Magazine," August, 1949, p. 418.

6AG5 r.f., 6J6 mixer-oscillator, 1st i.f. 1,500 Kc., 2nd i.f. 465 Kc., S meter, noise limiter, etc.

"Your First Transmitter," R. L. Parmenter and C. E. Clark, "Radio and Television News," August, 1949, p. 26.

Two valve c.w. transmitter for 80, 40 and 20. 6C4 Pierce crystal oscillator, capacity coupled to 807 running 60 watts input. Provision for break-in operation.

"A Cathode Follower V.T.V.M.," E. J. Schultz, "Radio and Television News," August, 1949, p. 52.

A single tube and a 0-1 Ma. meter measures up to 1,000 v. d.c. at 12 megohms input resistance and measures resistances up to 100 megohms with a 1.5 v. dry cell.

"Crystal Controlled Portable V.H.F. Transmitter," R. B. Turner, "Radio and Television News," August, 1949, p. 34.

Design of dry battery transmitter for 144 Mc. to have the least current drain per watt output. 8 Mc. crystal operated on third overtone by half 3A5. Other half of 3A5 doubles to 48 Mc. 3B4 triples to 144 Mc. and drives another 3B4 as straight amplifier.

"A Low Power Rig for C.W. or F.M. Phone," O. L. Woolley, "Radio and Television News," August, 1949, p. 48.

The circuit is conventional and straight forward. Tube line-up is 6SJ7, 6J5 speech amp., 12A6 oscillator, 12A6 buffer doubler, and 807 final. The v.f.o. is modulated for f.m. by the resistance variation method (loop modulation to old timers).

"High Gain Directional Array for Marginal T.V. Reception," L. E. Greenlee, "Radio and Television News," August, 1949, p. 28.

Full details for constructing a five element beam consisting of folded dipole, three directors, and a reflector. Actual dimensions given for frequencies in the range 54-216 Mc., and appropriate formulae are given to calculate element lengths and spacings for othr frequencies.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

R.D. CONTEST

Minden, via Rosewood, Queensland.

Editor "A.R.," Sir,

The 1949 R.D. Contest has been decided and heartiest congratulations to VK7. I was very interested in the score board published in the November issue and worked out the following interesting percentages:—

	VK2	3	4	5	6	7
Percentage of participants who sent in logs	41	36	45	65	89	90
Percentage of eligible logs	75	71	79	84	80	80
Percentage of licensed Hams taking part .	15	13	16	16	15	33

Now it was stated that the new multiplier would appear to make it impossible for the larger States to win the coveted trophy. I do not agree with this statement. VK7 had one-third of its licensed Hams taking part. If the last State on the list, VK3, had had one-third of licensed Hams taking part and had 80 per cent. of these send in eligible logs (as was the case with VK7), the VK3 multiplier would have been 0.26. Score for VK3 then would be 307.7 x 0.26 equals 80, and the winner.

Therefore I do not believe that the reason that the larger States did not win is any fault in the multiplier system. The fault lies with the States themselves. Each State must awaken greater interest in the R.D. Contest and get a great percentage of licensed Hams to take part, and must also get a considerable increase in the ratio of logs sent in to participants.

It is also noticed that of all licensed Amateurs in VK, only 16 per cent. took part—why?

The Remembrance Day Contest is an all Australian Contest and is held to remind us of those Hams who made the "Noble Sacrifice." Is it asking too much for Hams of Australia to take an active part in such a Contest?

—F. H. SHANNON, VK4SN.

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OPERATING SUGGESTIONS

65 Railway St., Traralgon, Vic.

Editor "A.R.," Sir,

QRM on various bands is frequently very objectionable. On 40 metres, at least, I think it could be cut down considerably in the following ways:—

(1) Never reply to a CQ call which is QRMed.

(2) If a station answering a CQ is QRM, request him to shift to a clear channel before confirming QSO.

(3) Allot a single frequency (preferably outside the band!!) for those Amateurs who, lacking a dummy antenna, are forced to whistle, test, count, or otherwise clutter an already crowded band. Alternatively, restrict such tests to the period 2 a.m. to 5 a.m. or thereabouts.

Hoping these suggestions will find some favor, and discourage careless or selfish operation .

—H. REID, VK3RH.

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TO OPERATORS OF SLOW MORSE TRANSMISSIONS

Cape Conedie Lighthouse,
Kangaroo Island, S.A.

Dear Sirs,

I have just received advise to the effect that I was successful at the October examination for the A.O.C.P. I therefore wish to take this opportunity to thank you for the part you played in bringing this about, namely slow morse transmissions.

Although it is the duty of Lightkeepers to be proficient in visual signals, it is a far different matter when it comes to sound, and had it not been for these practice sessions, I would never have got through as well as I did.

So once again I extend my heartiest thanks and congratulate you on the fine job you are doing. Keep up the good work as there is possibly hundreds more like me.

—A. W. WINTER.

A.R.C.I. DX CONTEST

(Continued from Page 14)

6. The contest will extend from 0730 hrs. G.M.T. Saturday, December 10 to 1830 hrs. G.M.T. Sunday, December 11, 1949, and from 0730 hrs. G.M.T. Saturday, December 17 to 1830 hrs. G.M.T. Sunday, December 18, 1949.

7. For the purpose of this contest, stations located in India, Ceylon, Burma, and Pakistan will be considered as local stations and in one zone. The rest of the world will be divided into zones according to their country prefix list. An entrant not located in one of the prescribed prefix zones shall be considered as being in a prefix zone nearest to his station.

8. Bands.—Only 14 and 28 Mc. Amateur Bands will be used.

9. Code Groups.—All entrants will exchange a five figure (phone) or six figure (c.w.) groups with the contacted stations. The first two (for phone) and first three (for c.w.) figures will denote the signal report in RST and the last three, the serial number of the station contacted, e.g., for the eightieth phone contact your number will be 59080 (assuming that his signals are R5 S9 at your end) and for the two hundredth c.w. contact your number will be 599200, etc. The exchange of these groups is essential for claiming points.

10. Licence.—Conditions laid down in the entrant's licence must be observed.

11. Band Monitoring.—Special band monitoring stations under the auspices of the A.R.C.I. will be active during the contest. Any station reported off frequency by these stations will be disqualified.

12. Scoring.—(a) Contacts with, or reports from, ships or unlicensed stations will not count for points.

(b) Only contacts with stations located in other than the entrant's own zone will count for points.

(c) Only one contact with a specific station may be made on each band during each week-end of the contest; stations contacted during the first week-end may be contacted again during the second week-end for points.

(d) Twenty points will be awarded for the first contact on a specific band (i.e. same station may be contacted on 14 Mc. and 28 Mc. bands and 40 points scored). Nineteen for the second contact, 18 for the third, and so on down to 1 point for the twentieth contact, in each zone, i.e. (contacts with different zones will count separately for points so that for the first contact in each zone you can claim 20 points).

(e) A bonus of 350 points will be awarded to any entrant working all zones during the contest.

(f) A bonus of 1,000 points will be awarded to any entrant working all zones twice during the contest.

(g) A bonus of 50 points will be awarded to any entrant working all countries during the first week-end.

(h) A bonus of 150 points will be awarded to any entrant working all countries once during each week-end.

13. Log.—All entrants must forward a log sheet recording their contacts, as their entry form. The log should contain the following information:—

(a) heading showing (i) Name of entrant; (ii) QTH of entrant; (iii) Call sign; (iv) Details of Tx; (v) Details of Rx; (vi) Details of antenna; (vii) A signed declaration as follows:—"I hereby certify that my station was operated strictly in accordance with the rule and spirit of this contest and I agree that the decision of the A.R.C.I. Contest Committee shall be final in all cases of disputes."

(b) Body, giving following information: (i) Date; (ii) Time of contact G.M.T.; (iii) Band; (iv) Call sign of the station contacted; (v) Five or six figure group sent; (vi) Five or six figure group received; (vii) Prefix zone; (viii) Points claimed.

Index to Volume 17—1949

The LEADING 5 BAND

Electrical BAND SPREADING TUNING UNIT

Aegis does it again! This time its multi-band tuning unit, specially developed for the Custom Built Console of the modern lounge! The unit is actually the entire "Front End" of a radio receiver, completely assembled and wired and accurately calibrated in megacycles and aligned. For those who are especially keen on listening to exciting Overseas Broadcasts direct from their origin, plus hundreds of Amateur Radio Operators talking to one another all over the world, small ships at sea, aircraft, police, and standard broadcast Interstate, we highly recommend the Aegis KC.5. Tuning on the Shortwave Bands is just as easy as tuning the Broadcast. Once a Station is logged on this beautifully clear dial, you can rest assured it will appear at the same position next time.

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All associated resistors and by-pass condensers included, complete.
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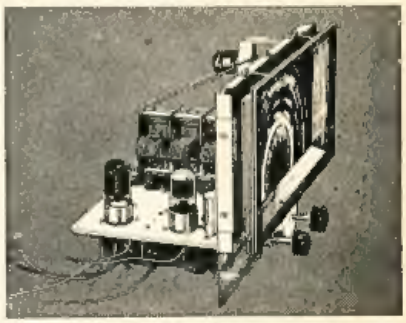

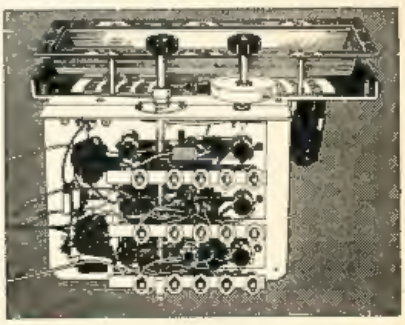

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